March/April 1993 $2.00

MONTANA OUTDOORS

Our Point of View

I was born in Montana. Grew up here, except for brief stints in Oklahoma and Idaho.

Some of you know me; most of you don't. No, I don't have relatives in Miles City, but I lived there once, twice.

Montana is a special place for me. People...places, like those featured on the pages of Montana Outdoors. In Montana, you usually don't have to wonder what somebody thinks. Although sometimes you would just as soon not know.

Tough to tell the difference between a Republican and a Democrat—one's just a bit more conservative than the other.

Montana's not like she used to be, except to those who never knew her.

But white clouds still billow on hot August days, drifting across the high plains—the Rocky Mountain Front in relief.

Crisp autumn days are my favorites—on a spring creek, in an elk camp, at a soccer game.

Diversity is our strength—glacial streams to prairie potholes, Irish immigrants to Cheyenne Indians, fifth-generation farmers to urban refugees, grizzly bears to water ousels, copper kings to cowboys.

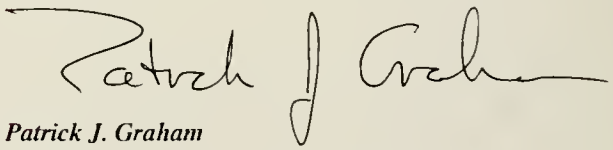
We struggle openly with our differences, as we fight to forge a future for ourselves and our children without losing what we have.

Our dreams are bold, and we work hard.

Sometimes we listen. Sometimes we don't.

But we know about community. I was reminded of that when I read Jeff Stoffer's story about Ray Doig and water for Dry Creek trout.

The spirit of community makes things happen. But you don't have to be born here to feel it, to make it happen.



Patrick J. Graham
Director
Montana Department of Fish, Wildlife & Parks

NELSON KENTER

Wildlife watching takes patience and practice. For the animals' sake, it should be done from a safe and respectful distance (page 2).

State of Montana
Marc Racicot/Governor

Fish, Wildlife & Parks Commission
Errol Galt/Chairman
Greg Barkus/Vice Chairman
Elaine Allestad
Jim Rector
William Stratton

Department of Fish, Wildlife & Parks
Patrick Graham/Director
Al Elser/Deputy Director for Field Operations
Dave Mott/Associate Director

Conservation Education Division
Ron Aasheim/Administrator
Vince Yannone/Assistant Administrator

Montana Outdoors Staff
Dave Books/Editor
Kay Morton Ellerhoff/Associate Editor
Bev Veneziano/Art Director

Montana Outdoors (USPS 360 280), the official publication of the Montana Department of Fish, Wildlife & Parks, is published bimonthly (January, March, May, July, September, and November). Contributions (manuscripts or illustrations) are welcome with the understanding that the department or the editor cannot be responsible for loss or damage. All contributions will be published at the discretion of the editor. For subscription information, phone 800/678-6668 (toll-free). Subscription rates are $7 for one year, $12.50 for two years, and $17 for three years. (Please add $3 per year for Canadian subscriptions. All other foreign subscriptions, air mail only, are $22 for one year.) Individual copies and back issues cost $2 each. Although ***Montana Outdoors*** is copyrighted, permission to reprint articles is available by writing our office or phoning us at 406/444-2474. All correspondence should be addressed: ***Montana Outdoors***, Department of Fish, Wildlife & Parks, 1420 East Sixth; Helena, MT 59601. ©Montana Department of Fish, Wildlife & Parks, 1993. All rights reserved. Indexed by States' Periodical Index, 1660 Smithville Road; Havre, MT 59501.

Postmaster: Send address changes to ***Montana Outdoors***, Department of Fish, Wildlife & Parks, 1420 East Sixth; Helena, MT 59601. Second-class postage paid at Helena, MT 59601, and additional mailing offices.

MONTANA OUTDOORS

March/April 1993
Volume 24, Number 2

FEATURES

2 Outsiders Looking In
by Deborah Richie
While most of us value seeing wild animals in their natural surroundings, how many of us watch them safely and responsibly? Watching wildlife takes ethics.

8 Lands Legacy—A Home Where Elk and Cattle Roam
by Bernie Kuntz
Mount Haggin Wildlife Management Area serves as a model for the compatibility of cattle grazing and wildlife.

15 Have RV, Will Travel
story and photos by John Fraley
Volunteer park hosts have contributed countless hours toward making Montana's parks more pleasant places to visit.

18 Habitat—Take a Deeper Look
poster by Harold (Rich) Stevenson
Before you peek at the key on page 20, try to find 44 different plants, fungi, insects, mollusks, amphibians, reptiles, fish, birds, and mammals on this colorful poster.

21 Davis Wins 1993 Waterfowl Stamp Contest
by William Phippen
Helena artist Darrell Davis' rendition of a pair of harlequin ducks took top honors in this year's waterfowl stamp competition.

26 Second Genesis for Trout
by Jeff Stoffer
Landowners and biologists in Broadwater County are working together to restore depleted trout populations on the upper Missouri River.

31 Watchable Wildlife—Greyhound of the Air
by Dave Books
The pintail's profile in flight is long-necked, sleek, and streamlined.

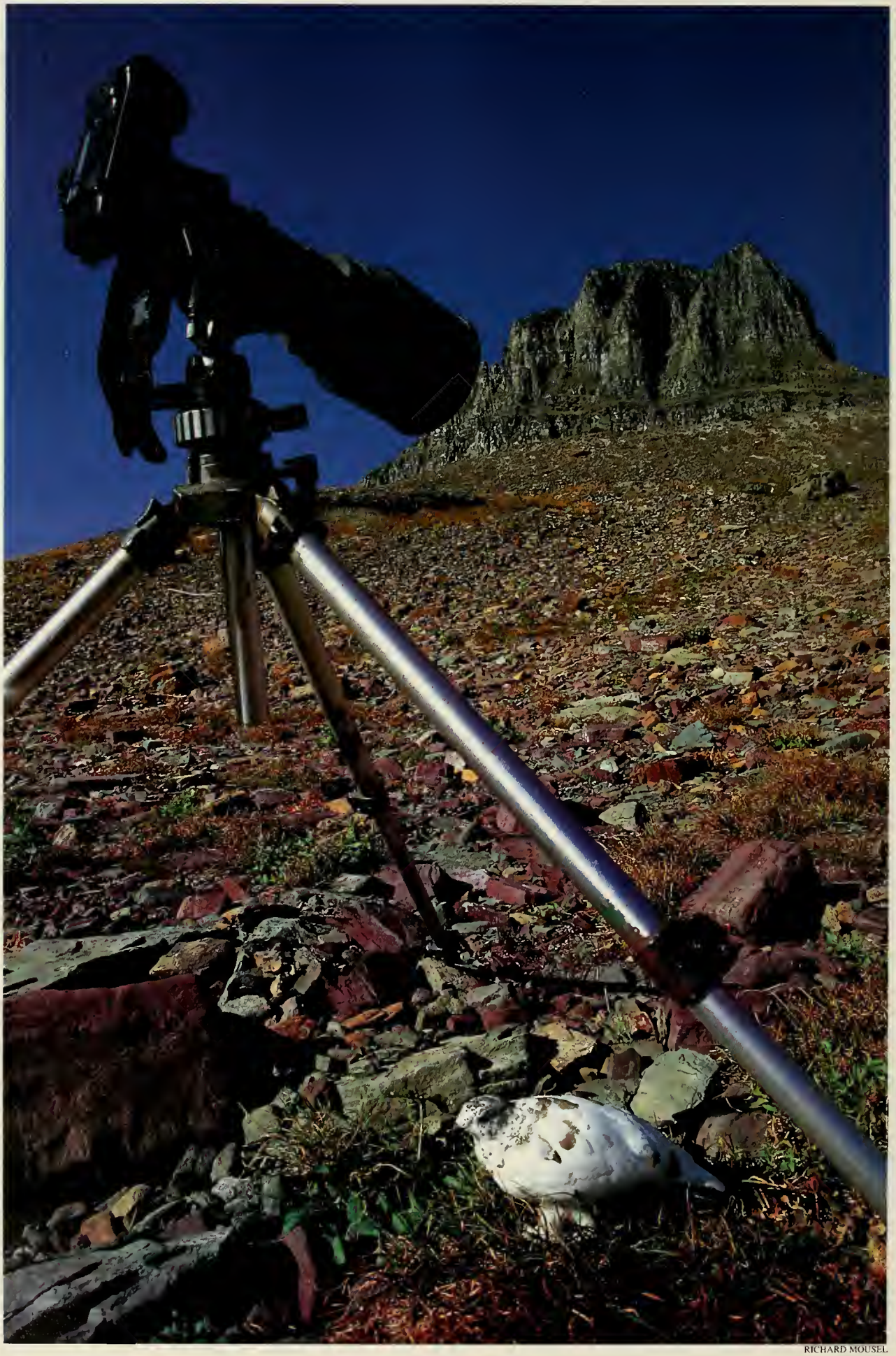
36 Perspectives—Highlands Ram Tops 'Em All
by Michael R. Frisina and Jack Atcheson, Jr.
Found in the Highland Mountains/Maiden Rock area south of Butte, this bighorn sheep ram is the largest recorded for the United States.

DEPARTMENTS

11 Catchall
23 Letters
24 Book Reviews
25 Contributors

COVERS

Covers—Northern pintails, like the front-cover pair photographed by **Gary R. Zahm** of Los Banos, California, have suffered from drought and habitat loss over the past two decades. But waterfowl biologists are working to bring their numbers back to 1970s levels. Landowners and biologists are working together to restore depleted trout populations on the upper Missouri. With catches like this creel-filling rainbow, captured by Townsend photographer **Paul Updike**'s camera on a channel near Canyon Ferry Reservoir, their success seems to be assured.



RICHARD MOUSEL

OUTSIDERS LOOKING IN

Watching Wildlife Takes Ethics

by DEBORAH RICHIE

YOU ARE WALKING BESIDE a Montana stream, threading your way among willows. Suddenly, you glimpse chocolate brown fur and the tips of antlers just showing in the thicket. You fumble with your camera and hurry closer for the photograph of a lifetime. The moose charges. You quickly retreat. The message is clear: too close.

More subtle signs, from the twitch of an ear to the ruffling of feathers, can indicate an animal is alarmed by your presence. Four of every five Americans watch wildlife. It's heartening to know that most of us value seeing wild animals outdoors. Yet how many viewers watch safely and responsibly?

What are the costs of disrupting wildlife? In Glacier National Park, between 1983 and 1992, park rangers killed 23 black bears, seven grizzly bears, two mountain lions, a white-tailed deer, a mule deer, and a pine marten involved in conflicts with visitors. Twenty-one people suffered injuries from grizzly bears, and three died.

While not every incident resulted from people intentionally disturbing wildlife, the sobering statistics from Glacier point to major problems when people and wildlife mix. More often than not, animals are the losers within the very parks set aside for their protection.

Beyond direct deaths and injuries, approaching wildlife can cause stress that shows up much later. In Alaska, biologist Valerius Geist estimated that a caribou may require an additional two pounds of food if frightened only once. In Canada, Raymond Stemp, in a 1983 master's thesis at the University of Calgary, found that disturbing bighorn sheep caused elevated heart rates for up to an hour afterward.

Gayle Joslin, biologist for Montana Department of Fish, Wildlife & Parks (FW&P), studied mountain goat reactions to oil and gas exploration on the Rocky Mountain Front and published a report in 1986. She surmised that if goats' heart rates reacted like those of bighorn sheep, the elevated heart rate in adults could explain the lower survival rates of offspring during the drilling period. Even if a nanny goat stood still during a drilling test, she could well have been distracted from "focusing on her mothering instincts," Joslin noted.

PROTECTING ANIMALS FROM DISTURBANCE while promoting wildlife viewing poses a challenge to watchable wildlife programs. The expanding national network of viewing areas and guidebooks will likely become a testing ground for solving problems caused by people coming too close to wildlife. The sites are ideal for conveying ethics and interpreting natural history. Most important, the experience of seeing wildlife minus cages or a television set can ignite a fire within people to take action on behalf of wild creatures and their homes.

Binocular logos on Montana road signs direct viewers to state, federal, and private viewing areas listed in the "Montana Wildlife Viewing Guide." The book illustrates the wealth of wildlife observable in Montana in every season. In winter, bighorn sheep cluster in a meadow at KooKooSint viewing area near Thompson Falls. In spring, a white mist composed of thousands upon thousands of snow geese drifts on Freezout Lake Wildlife Management Area near Fairfield and Choteau. In summer, a loon's tremolo call filters across Seeley Lake. In fall, bald eagles feast on spawning salmon on the Missouri River not far from the state capital.

A statewide committee reviewed all proposed areas and chose to omit some prime viewing spots from the guidebook, simply because they were too fragile to withstand more observers. Even with such forethought, the stakes are high at Montana's chosen areas. As early as the 1940s, Aldo Leopold described a potential "Catch-22" when he wrote:

Conservation of wildness is self-defeating, for to cherish we must see and fondle,

and when enough have seen and fondled, there is no wilderness left to cherish.

DOORS SLAM. AT LAST, THE ROAD-WEARY FAMILY arrives at Canyon Ferry State Park. They've driven five hours to see a Thanksgiving gathering of bald eagles on the Missouri River near Helena. Out jumps the barking family dog. Four children spill out of the back, hooting and racing around the parking lot.

Meanwhile, three adult bald eagles perched across the river flap downstream. A mottled juvenile bird halts its efforts to tug a dead salmon onto the shore.

The volunteer naturalist approaches the family with a polite smile and some sound advice: If they keep the dog in the car, move slowly, and talk quietly, everyone will be treated to the sight they had driven so far to see. Besides, she adds, each time the eagles fly off, the birds use up energy that they need to store for winter survival. She offers to show them a distant perched bird with the aid of a spotting scope. Parents and children gather close, thanking her in low voices.

Fostering a respectful relationship with wildlife based on knowledge of the species and habitats is a primary goal of all watchable wildlife efforts. During the November eagle viewing season at Canyon Ferry State Park, an educational approach appears to be making a tremendous difference. The 30 volunteers first take a course in basic eagle and salmon biology. A low-budget nature center near the viewing area gives visitors plenty of chances to touch eagle feathers, talons, and bones, instead of trying to get too close outdoors. A host of agencies, eagle biologists, and individuals work together to continually improve the experience for viewers and eagles.

Such managed experiences as Canyon Ferry ought to help instill values for viewers to take with them wherever they travel. In his book, "The Amateur Naturalist," British naturalist Gerald Durrell had this sage piece of advice for wildlife watchers:

The first and most important thing a naturalist in the field has to learn is a code of behavior. Remember you are privileged to live in this world and so must treat it politely and with respect. When you visit friends you do not pick all their flowers, trample on their flower beds and fill their pond with empty cans and bottles, so treat the world as a very special garden.

Durrell's code of behavior can be summed up this way: Walk softly in their home, no matter how empty the landscape appears. Listening for rustles in the grass or noticing tracks in the mud oils our rusty senses. When the still prairie sways with the passing of a herd of antelope, the vision comes as an unexpected gift, permanently etched in memory.

In some places, animals **do** appear like clockwork, and so do the viewers. Thousands line a high meadow on a fall evening in Rocky Mountain National Park. They settle into lawn chairs or lean against their cars as if waiting for Fourth of July fireworks. Soon, dark shapes separate from the shadows at the far meadow edge. The elk start bugling, signaling the start of the annual mating ritual. For park officials, the display of watchers has become an amazing traffic headache. Obviously, to continue to encourage watching while discouraging a carnival atmosphere will require creative management.

Leopold's fear of loving to death what we care for strikes home, especially in parks. The behavior of certain animal species in national parks is markedly different from the same species' behavior outside the park. Years of handouts and sharing space with tourists has resulted in what managers call "food-conditioned" animals—they are still wild and unpredictable, but they have lost their fear of people.

PHIL FARNES

After years of sharing space with tourists, animals begin to lose their fear of people. When these "conditioned" animals are involved in conflicts with humans, they usually come out on the losing end—even in the very places set aside for their protection.

A WHITE-TAILED DOE KICKED TWO PEOPLE in separate incidents in Glacier National Park in 1990. The visitors tried to pet her. No one was seriously injured. However, when park rangers attempted to tranquilize the deer to move her to a more remote section of the park, she fell on a limb and was fatally injured.

A few days earlier, a bison gored an elderly woman near Old Faithful in Yellowstone National Park. A local newspaper quoted the woman as saying the bison "didn't look mean."

Betsy Spettigue, watchable wildlife coordinator for FW&P, saw a crowd of 50 visitors surround a mountain goat nanny and kid in Glacier last summer. As the group pressed closer to see and take photos, the kid was separated from its mother.

"What I saw probably happened six times that day," Spettigue said. "The cumulative effects are even more of a worry." How many times had the kid missed nursing? What about the dangers of a predator attacking the unprotected kid? Or the threat of a car hitting either the nanny or the kid?

The problems are more serious than most watchers suspect.

The proper relationship with wild animals is a subject not commonly taught. Seeing animals in zoos, full-frame shots on nature programs, or by the side of the road in Yellowstone National Park encourages visitors to expect "up-close and personal" encounters with wildlife.

Both Glacier and Yellowstone parks have active programs aimed at reaching people before they feed or pet a deer, or walk within 20 feet of a goat or a one-ton bison. Unfortunately, Glacier's Gary Gregory reported that the summer of 1992 was the worst ever for people feeding wildlife. He witnessed visitors standing next to "no feeding" signs handing slices of white bread to deer. The sign plainly states that feeding is harmful for animals. Gregory wonders if the park may have to switch from education to heavier tactics, including enforcement of the law that it is illegal to feed animals. On a more positive note, he has also seen visitors ask others not to feed animals. He suggests peer pressure could lessen the need for enforcement.

GEORGE WUERTHNER

Bison in Yellowstone National Park may look placid, but when people get too close they react defensively—and sometimes violently. Wildlife watchers must learn there is a fine line between viewing and victimizing wildlife.

THE PROXIMITY OF PEOPLE TO WILDLIFE in national parks may well elevate visitor expectations outside parks. Along Nebraska's Platte River, 80% of the continent's sandhill cranes stop over between Kearney and Grand islands, the only remaining crane habitat on a river with many impoundments for irrigation. The attraction of seeing a half million of these primeval birds lures thousands of crane viewers each year. The people numbers are expected to skyrocket. The crane numbers will not. Writes Jon Farrar in "The Impact of Crane Watching" in *NEBRASKAland* magazine:

As the cranes are squeezed into ever-shrinking stretches of the river, so too are the people who come each March to see them. This concentration of crane watchers has brought problems to the central Platte and perhaps to the sandhill cranes themselves.

The cranes suffer from incidents like these: a person shines headlights into a night roost and flushes birds; a pilot flies an ultralight aircraft low over the flocks; and photographers scare off cranes. The change in crane behavior is obvious. On weekends, few cranes feed within 150 yards of county roads; most have been pushed to the middle of the fields where they feed.

How does this affect crane health? Biologists learned that sandhill cranes, which usually weigh between seven and nine pounds, must gain a pound to be able to fly on to the Arctic and nest. Think of a 150-pound person gaining 20 pounds in a month and foraging for every bit of that food, instead of hanging out at the local cafe.

Rather than cracking down on trespassers into crane habitat, local groups chose a watchable wildlife strategy. Four years ago, the local Convention and Visitors Bureau joined with area wildlife organizations to sponsor an annual celebration of the cranes called "Wings Over the Platte." The three-day celebration intersperses tourism interests with messages about preserving the Platte River ecosystem and ethical viewing.

The Crane Trust and the Audubon Society also constructed viewing blinds on lands owned by the two groups. From the blinds, people can see and hear the breathtaking spectacle of thousands of cranes.

VIEWING STRUCTURES ARE ONE INNOVATIVE SOLUTION to that strong urge to step a little closer. Peeking through slats in a wooden blind on Seeley Lake, viewers see American redstarts singing only an arm's length away. A northern harrier cruises low to the marsh. This Lolo National Forest watchable wildlife blind, constructed a year ago, is earning local and national praise. The Idaho Panhandle National Forest completed a similar blind on Thompson Lake last fall. Both sites are in the state viewing guidebooks.

The concept is not new, yet relatively few blinds exist for wildlife viewers. Two British photographers discovered the benefits of blinds almost a century ago. In the early 1900s, brothers Cherry and Richard Kearton constructed a model of a domestic sheep and hid a camera within it that they could operate from afar—all to capture a photo of a certain sandpiper. The Keartons recognized early that preventing disruption of their subjects' daily activities led to the best photos.

PHOTOGRAPHY MERITS SPECIAL ATTENTION, since the temptation to cross that invisible line is much greater with a still or video camera in hand. In the spring 1988 newsletter of the Yellowstone Association (a nonprofit group that funds education projects for Yellowstone National Park), the following wisdom appeared:

If the goal of wildlife photography is to

let the subject express itself as a natural species, engaged in natural activity, in a natural setting, the ethical approach will yield the best results for both the photographer and the wild subject.

In principle, this is true. Unfortunately, major outdoor magazines often search for full-frame photos of animals staring straight at the camera. What's good for the animal is not always rewarded with publication. One professional wildlife photographer, interviewed in a Bozeman paper two years ago, recounted stories of black bears, including females with cubs, repeatedly charging him. He stated that "the closer the better" was his principle, because the images were sharper with an 80mm lens.

Two photographers, one in Glacier and the other in Yellowstone, died in 1987 while in pursuit of grizzly photographs. In each case, the sow was protecting her cubs from harassment. Glacier officials decided not to pursue the sow after determining the bear had no previous history of contact with people. However, the Yellowstone bear had a record as a "food-conditioned" bear, and Park Service officers killed her following the mauling.

In contrast, the strictly managed bear viewing area at McNeil River Falls in Alaska has led to spectacular photography and viewing, without injury to Alaska brown bears or to people, since the program started in 1973. Alaska Fish and Game allows 10 visitors per day to watch from a designated viewing area from June 7 to August 25 when the bears fish for migrating salmon. The bear population using the falls has doubled in the past 15 years. Larry Aumiller of the Alaska Department of Fish and Game credits the consistent viewing management as a major factor in the bears' comfort level.

Chuck Jonkel, bear biologist from Missoula, explains that the bears at McNeil have learned to treat this daily troupe of viewers as if they were other bears. "The bears learn a respectful relationship quicker than people do," he quips.

Potential grizzly bear watching areas in Montana exist as well, Jonkel says. The effort it would take to plan and manage the sites to ensure human and bear safety is worth every penny, he adds. The more people who care about bears, the better the odds for the grizzly's survival. "Teach people some tricks on how to spot bears through binoculars," he says. "Then let them find their own bears, and these people are hooked." That's been his repeated experience while leading annual grizzly bear field courses for Glacier Institute and for the Montana Chapter of The Nature Conservancy at Pine Butte Swamp Preserve.

WHETHER YOU ARE ALONE OR WITH A GUIDE, whether you are watching, fishing, hunting, or photographing—whenever you come across animals, respecting the dignity of animals has to

NELSON KENTER

THE ETHICS OF WATCHING WILDLIFE

Always ask yourself, "Will my presence or actions here harass some creature or displace it from its home? Is it okay for me to be here?" Be a dignified guest in the kingdom of the wild.

1. BEFORE HEADING FOR THE FIELD

Prepare by glancing through field guides, check lists, and displays. Spotting and identifying will be easier.

2. TAKE IT EASY

Limit and slow down your travel to decrease disturbance. Each time you or your pet flush a bird, you cause it to use up vital energy reserves needed for migration, nesting, or feeding.

3. HIDE AND SEEK

Use vegetation or your car as a "blind." By partially or completely hiding behind shrubs, trees, or cattails, you can improve your view. Be careful not to break, trample, or pull out plant life.

4. WALK SOFTLY—SILENCE IS GOLDEN

Being quiet is the single most effective way to see wildlife. When in a group, agree on periods of silence, so you can all concentrate and enjoy the sounds of the wild.

5. BEST OF BOTH WORLDS

Look for areas where two habitats meet, such as a field and woods or a marsh and pond. These areas often have more activity and kinds of wildlife because of the food, water, and shelter they provide.

6. TRAVEL BY TRAIL

Stay on trails and marked roads to reduce human smells, sounds, and movements in the wild, so as not to scare wildlife away. Often, people harass wildlife by trying to get "just a little closer." Binoculars and zoom lenses are handy to minimize your impact.

7. FREEZE YOUR VIEW

Don't move if you see something! Often you can prolong your view of wildlife by freezing until the animal decides you're not a threat.

8. LISTEN LIKE A DEER

Place your thumbs against the back of each ear. Cup your hands so your fingers curl around the edges of your ears. Turn your head from side to side and up and down to hear a broader range of sounds.

9. PATIENCE HAS ITS REWARD

Concentrate on immersing yourself in nature. Wildlife watching takes practice and patience. Take the time to observe wildlife as you enjoy its beauty and habitat.

10. BEST PHOTOS DON'T DISTURB

Take photographs from a safe and respectful distance. Yelling, waving arms, and throwing rocks or sticks will cause stress to wildlife and reduce views of others. Try patience or another location or time instead of cutting plants for a better photo.

11. DON'T CALL US, WE'LL CALL YOU

Using recorded or hand calls to attract wildlife has been shown to cause undue stress to some species by interrupting courtship, denning, nesting, and feeding.

12. LEAVE ONLY FOOTPRINTS—TAKE ONLY MEMORIES

Collecting items of nature reduces viewing opportunities for future visitors. It also denies that cycle of nature which returns nutrients to the earth.

—California Department of Fish and Game, reprinted with permission

come first. Neil Chaput, director of the Rocky Mountain School of Photography in Missoula, suggests that managers of wildlife areas should cooperate closely with photographers. Managers, he says, could adapt opening and closing hours on refuges for the best light. Biologists could present seminars about when and where wildlife may be most susceptible to disturbance, and offer tips on recognizing alarm displays. In return, photographers might be willing to share photos or help with workshops.

Watchable wildlife is the ideal program to encourage responsible photography and to spread the wealth of knowledge often locked up in research reports. Equipping viewers with sound information can help cut down unintentional disruption. For example, alarmed young owls fluff out the feathers on their shoulders and rock side to side, according to Denver Holt, president of the Owl Research Institute in Missoula. He understands behavioral signs from years of observation.

Writer Barry Lopez addressed this issue of scientific research and the accompanying humility gained by hours of patient observation in his book, "Arctic Dreams":

Many western biologists appreciate the mystery inherent in the animals they observe. They comprehend that, objectively, what they are watching is deceptively complex and subjectively, that the animals themselves have nonhuman ways of life. They know that while experiments can be designed to reveal aspects of the animal, the animal itself will always remain larger than the sum of any set of experiments.

WHY DO ANY OF US FEEL COMPELLED to watch wildlife? Perhaps we unconsciously seek answers. We know that humans have the power to destroy. We bear the grave responsibility for the extinction of hundreds of species. Watch, and wildlife may yet show us how to live within ecological bounds.

Watchable wildlife programs serve as a bridge to comprehending the natural world. Designated viewing areas help open our eyes to the collage of habitats surrounding us. Viewing blinds, nature trails, interpretive signs, and naturalists steer us toward a deeper appreciation of species other than our own.

As more and more people flock to view eagles by the hundreds or cranes by the thousands, state and federal wildlife managers have a choice. They can treat the throngs solely as a law enforcement problem or spend the time, energy, and dollars necessary to come up with innovative techniques, such as the McNeil River example, to encourage viewing and protection simultaneously.

The investment in the long run could make the difference in whether enough people in the world care about the future of wildlife.

Native American tradition tells us that all creatures are our brothers. Hope lies in opening our hearts to this whole family of wild creatures, from beetles rummaging among leaves to the great blue heron poised on the river's edge. The better watchers we become, attuned to every creature around us in every season, the greater chance we will have of shedding our lonely role of outsiders looking in. ■

GEORGE SCHUYLER

In some places where animals appear like clockwork, so do the viewers. Protecting wildlife under these conditions poses a challenge to watchable wildlife programs.

FOR MORE INFORMATION:

- Center for Wildlife Information, P.O. Box 885; Bloomfield Hills, MI 48303 (313/642-2199). Offers educational materials, slide shows, and exhibits emphasizing the individual's responsibilities when photographing, observing, and enjoying wild animals.
- "Montana Wildlife Viewing Guide," by Carol and Hank Fischer, Falcon Press (P.O. Box 1718; Helena, MT 59624, or phone 1-800-582-BOOK), 1990, $5.95. Also available at Fish, Wildlife & Parks offices (proceeds support FW&P's Watchable Wildlife Program) and bookstores.
- "The Field Guide to Wildlife Habitats of the Western United States," by Janine Benyus, Simon and Schuster, 1989. Excellent section on observation tips.
- "Code of Ethics for Film Makers." Available from International Wildlife Film Festival, 280 East Front Street, P.O. Box 9383; Missoula, MT 59807 (406/728-9380).
- Abstracts from the first National Watchable Wildlife Conference, September 10-12, 1992, Missoula, Montana. Limited copies available. For abstracts or more information about Montana's Watchable Wildlife Program, address inquiry to Betsy Spettigue, Montana Department of Fish, Wildlife & Parks, 1420 East Sixth Avenue; Helena, MT 59620 (406/444-1276).

A HOME WHERE ELK AND CATTLE ROAM

The country at the base of the Anaconda-Pintlar Mountains is known as the Mount Haggin Wildlife Management Area (WMA), and it serves as a model for the compatibility of cattle grazing and wildlife.

Today, rest-rotation grazing systems are designed to protect stream banks. Also, expiration of a logging contract acquired with the land purchase will allow wildlife security cover to begin growing back. Mount Haggin provides diverse recreation opportunities, particularly hunting and fishing, snowmobiling, hiking, skiing, and photography.

Mount Haggin Wildlife Management Area

by BERNIE KUNTZ

"It is hard to overestimate the importance of the unit, particularly with its proximity to Butte and Anaconda," says area biologist Mike Frisina of the Montana Department of Fish, Wildlife & Parks.

The department acquired the Mount Haggin unit in 1976 from The Nature Conservancy, which purchased the 56,151-acre wildlife management area for $1.9 million while FW&P secured its funding.

The Mount Haggin area contains essential habitat for an elk herd that provides as many days of hunting recreation on a per-acre basis as any in the state. In 1991, Hunting districts 319 and 341, which Mount Haggin WMA comprises, provided 18,083 days of elk hunting recreation.

Hunting pressure is heavy at Mount Haggin, and habitat security is low due to the intense commercial logging that was done over the years. After witnessing a decrease in the carry-over of bulls, FW&P implemented a brow-tine bull season four years ago. This has raised the post-season percentage of bulls in the herd from 2% or 3% to about 10%.

FW&P inherited a logging contract with the initial acquisition of the Mount Haggin WMA that allowed for commercial harvest of more than 40 million board-feet of timber from 1976 to 1990, when the contract expired. "It had a major effect on our management program," Frisina said. "It hasn't hampered our ability to produce wildlife species on the WMA, but the logging has had a significant effect on vehicular access."

FW&P has imposed vehicle restrictions because extensive blocks of forest that once served as security for elk and deer during hunting seasons and for elk cows during summer calving were removed. "The only way we could compensate for that was to restrict motorized traffic, and institute a brow-tine bull hunting regulation," Frisina said. "We have kept as many roads open as possible, but motorized use is less than if the logging had not occurred."

Frisina estimates it will take 80 years for the land to return to a mature lodgepole forest, and 40 to 50 years to function once again as acceptable security cover. "If we had our druthers, there wouldn't have been intensive logging on the Mount Haggin

JUDITH E. STROM

Because of its proximity to Butte and Anaconda, Mount Haggin WMA is an important site for summer and winter recreation. Portions of the WMA that do not supply deer or elk winter range are open to snowmobiling and cross-country skiing.

JUDITH E. STROM

WMA, but we had to make the best of a situation that already existed," Frisina said. On the up side, there are a few areas logged 10 to 12 years ago where the logging opened the lodgepole and allowed expansion of quaking aspen, which is valuable to big game animals and songbirds.

The unit has a healthy mule deer herd and hunters take some very good mule deer bucks. It isn't uncommon to see 5-year-old mule deer bucks or older that field-dress at 220 pounds. Many of them are non-typical in antler conformation.

Through the 1980s, the deer herd increased and in the latter part of the decade, it stabilized. The deer population has remained fairly stable since the late 1980s. Winter habitat on the WMA consists of extensive stands of bitterbrush, a preferred winter browse species of mule deer.

Pronghorn antelope began to pioneer the area in the early 1980s and today 40 to 50 antelope frequent the unit and are increasing. "Before the department purchased the area, it was severely damaged by many years of continuous, season-long livestock grazing," Frisina said. "We implemented a grazing system that sets aside two-thirds of the area in summer, and antelope took advantage of it."

Distribution of livestock within the pastures scheduled for grazing is accomplished through herding to keep cattle from staying in one place for too long.

Mount Haggin's grazing system, as with the systems of several other WMAs in Montana, has had a positive influence on how many private landowners run their own grazing operations. Since most wildlife in Montana is produced on private land, FW&P's willingness to demonstrate a positive example of land management has generated landowner interest. "We fiddled with it until we got something that worked," Frisina said. "Now we produce wildlife, and at the same time we are operating a viable livestock operation. We are receiving numerous requests for assistance from private landowners who are interested in maintaining a livestock operation, but who also want wildlife on their places."

That demonstrates how a land manager can in fact maintain large numbers of wildlife and livestock in harmony with the soils and vegetation. "Vegetation monitoring indicates that riparian habitats and other plant communities are strong and improving," Frisina said. "In particular, we have a variety of rapidly increasing willow species growing along the creeks now. Willow distribution historically was limited by continuous grazing."

EVERYTHING FROM MOOSE TO BEAVERS and greater sandhill cranes has shown dramatic population increases. In addition FW&P receives fair market value per animal unit month (AUM); in 1992, the value was $10.38 per AUM. That money goes into a land trust fund; those dollars are used for lands maintenance and in-lieu-of-taxes payments.

Mount Haggin is also an important site for a variety of furbearers, particularly beavers. Interested trappers can apply by September 15 for a predator trapping permit valid for a portion of the WMA. Approximately two-thirds of the WMA is open for furbearer trapping through drawings. Three zones are assigned to three trappers, each of whom may trap 10 beavers and the state limit of other fur-bearing species.

The WMA supplies important nesting and brood-rearing habitat for greater sandhill cranes with its abundance of riparian and wet meadow habitat. The birds spend the summer on the WMA, and the number of nesting cranes has at least doubled in the

last decade. Because of nongame values in the area, one of the wildlife viewing routes in the "Montana Wildlife Viewing Guide" was established on the area. A portion of the National Continental Divide Trail also crosses the Mount Haggin WMA.

During winter, Mount Haggin has become one of southwestern Montana's more popular recreation areas. The parts of the WMA that do not supply deer or elk winter range are open to snowmobiling and cross-country skiing. Some statewide winter sports events like ski races have been conducted at Mount Haggin.

THREE PARCELS HAVE BEEN ADDED to the Mount Haggin WMA since the original purchase in 1976. First, about 1-1/2 sections were exchanged with the U.S. Forest Service in the early 1980s. Then there was mitigation for development of the Beals Mountain Gold Mine on the Deerlodge National Forest. Pegasus Gold Corporation required use of one of FW&P's access roads to reach land adjacent to the WMA. However, when mining is completed, the deed to about 600 acres of important deer and elk winter range near Fairmont will be turned over to the department. (Although there is no legal obligation to do so, it should be noted that Pegasus Gold set aside $200,000 for acquisition of habitat in the Butte/Anaconda area for the Fleecer Mountain elk herd. The local Skyline Sportsmen's Association from Butte and the Anaconda Sportsmen's Club played an integral role in negotiating this $200,000 donation.)

DAVE BOOKS

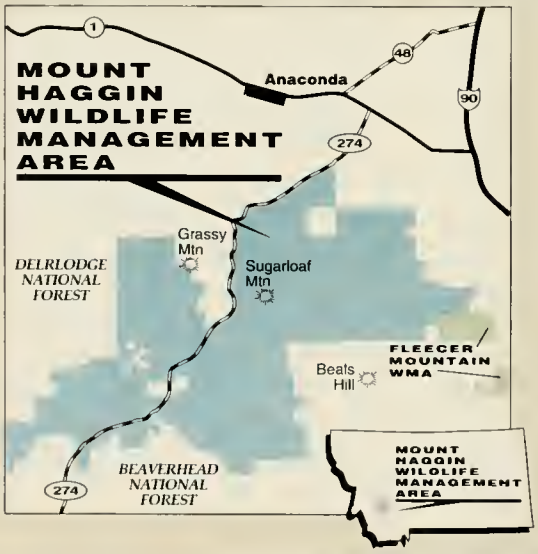
With its abundance of wet meadow habitat, the WMA supplies nesting and brood-raising habitat for greater sandhill cranes.

This fall Pegasus bought 1,000 acres of important spring, summer, and fall habitat for elk, and winter moose habitat that was slated for subdivision. The land is in the Mill Creek drainage adjacent to the northwestern boundary of the Mount Haggin WMA, and it will be another permanent addition to the unit.

A unique situation exists in the Mount Haggin area that promises to preserve the elk herd indefinitely: Between the Mount Haggin unit and the nearby Fleecer Mountain unit, which is also owned by FW&P, the department owns both summer and winter ranges for this important elk herd. That is reassuring for hunters and also for those who wish to use the land for hiking, snowmobiling, or wildlife-watching. Because Mount Haggin offers something for just about everyone. ■

MOUNT HAGGIN WILDLIFE MANAGEMENT AREA

Location: In Deer Lodge and Silver Bow counties, approximately 10 miles south of Anaconda at the base of the Anaconda-Pintlar Mountains.
Size: 56,151 acres.
Acquisition date: 1976.
Access: Highway access along State Route 274. Main roads open summer and fall as weather permits. Portion open to snowmobiling. Big game winter range closed to motorized traffic from December 1 through May 15.



Management goal: To provide year-round habitat for wildlife, emphasizing moose and mule deer, and to provide public outdoor recreational opportunities.

Hunting opportunities: Archery and rifle hunting seasons for elk, mule deer, white-tailed deer, moose, antelope, and black bear, and upland bird hunting are open to licensed hunters during open seasons. Antlerless elk permits and antlerless B-tags for deer are available through the statewide drawing.

Wildlife viewing: Visitors can see elk, white-tailed and mule deer, moose, antelope, and upland birds from roadsides. Black bears are occasionally observed. Nongame and bird-watching opportunities occur year-round. This WMA is home to a variety of songbirds, raptors, waterfowl, and shorebirds. Furbearers, such as beaver, muskrat, and mink, are active along lakes and streams. Martens are common in forests and visitors can see coyotes in all habitats.

BERNIE KUNTZ

The primary goal of Mt. Haggin WMA is to provide year-round habitat for wildlife and public outdoor recreational opportunities.

RACICOT APPOINTS GRAHAM AS FW&P DIRECTOR

Gov. Marc Racicot appointed Patrick Graham, a 15-year veteran of the Montana Department of Fish, Wildlife & Parks, as the agency's new director. Graham, 40, was FW&P's deputy director for staff operations.

"It's a real honor," Graham said after Racicot announced his appointment. "The department has a very important mission. It touches the lives of many people, and I look forward to serving those people."

Graham grew up in Bozeman, was graduated from Bozeman High School, and received degrees in fish and wildlife management from Montana State University and the University of Idaho.

He began his FW&P career as a wildlife biologist in 1977. He has been a fish and wildlife program manager in Kalispell, chief of fisheries management, and the administrator of the Fisheries Division. As deputy director, Graham has been responsible for supervising the agency's top administrators. He has been instrumental in directing FW&P's management teams which have redefined the agency's public participation processes and set long-range goals designed to guide day-to-day operations.

Graham said funding for Montana state parks will be FW&P's "main priority" during the Legislature. FW&P's legislative agenda also includes building a broader base of support for Montana's wildlife habitat programs and for landowner/sportsmen and women relations, he said. Requests for game farm regulations are also part of the department's legislative package, Graham said.

Pat Graham

Graham's father, Richard, was a research biologist with the Montana Department of Fish and Game in the 1950s and later was a professor in fisheries management at MSU.

Graham replaces K.L. Cool, who was appointed nearly four years ago by former Gov. Stan Stephens.

SMITH RIVER NEWS

One hundred sixty-seven floaters in 38 groups launching on one day. Four hundred people and 68 groups in the river canyon at one time. Intense competition for campsites. This level of crowding has never been anyone's idea of what a Smith River float trip should be. But these days might be over with implementation of regulations finalized by the Fish, Wildlife & Parks Commission in October 1992.

Like the landmark Smith River Management Act passed by the 1989 Legislature, these actions allow for high-quality recreation by setting limits on the level of use. Sportspersons have seen an example of limits-of-level-of-use management with antlered bull elk hunting regulations, but this is the first time such a limit has been set on river recreation in Montana.

The 1993 Smith River Allocation Rule contains the following stipulations:

- A daily launch capacity of nine. A launch is one group. (In 1992, the average number of people per group was 4.3.)
- All floaters must use a "declaration board" at the Camp Baker put-in to indicate where they intend to camp. Only about 60% of floaters used the declaration board during the 1991 season.
- All floaters must pre-register. There will be a $175 pre-registration fee for outfitted launches and a $15 pre-registration fee for private floaters. Fees must accompany launch application, and the pre-registration fee will be applied toward launch fees at the put-in.
- Any unassigned launches will be available daily on a first-come, first-served basis at Camp Baker.
- Outfitters are limited to one launch per day, except on Tuesday and Wednesday, when they can make two launches. Outfitted launches are part of the total nine launches per day. There will be a maximum of 73 outfitted launches for the entire season, with no more than 54 of them allowed during the peak season of May 22 through July 3. Department of Fish, Wildlife & Parks officials met with the 16 authorized outfitters in November and finalized a method for assigning launch dates.
- The outfitted client fee was raised from $15 to $65 per client. This is in addition to $175 per trip and $15 per staff member. Private floater fees remained at $15 per floater over 12 years of age.
- Revenue generated from the outfitted client fee increase, along with 10% of all other fees, will be placed in a Smith River Enhancement Account to be used to better manage and protect the river corridor.
- Outfitters may transfer their permits only if they include all allocated launches. Individual launches may be transferred on a permanent or temporary basis only within the group of authorized outfitters.

These regulations supplement the already existing fee rule which requires all floaters to pick up a permit and complete registration at the Camp Baker put-in, sets a group size limit of 15, requires floaters to display a boat tag, and to pay $15 per person.

The challenge now is to implement the rule. The fall issue of the *Smith River News* contained an article asking for comments. Fifty-three comments from the over 400 individuals, groups, and agencies on the newsletter mailing list were received.

Application procedures have been finalized, and they have been sent to everyone on the mailing list and are also available at regional department offices and in Helena.

The department has continued to receive input on campsite declaration through meetings with Great Falls and Helena area recreational groups. Other river managers, particularly the manager of the Middle Fork of the Salmon River, have shared their management experiences.

Comments received so far generally support declaration when a group is ready to launch because bad weather or water levels could make it impossible for floaters to make their declared campsites. Private floaters prefer all campsites available to both private and outfitted groups based on group size.

Some recreationists have also expressed concern that outfitters might be given the best sites. This same concern was voiced last summer by 5% of the private floaters when 12 outfitter campsites were designated and the outfitters were restricted to those sites. Outfitters prefer to know where they will be camping in advance, even if it means restriction to certain sites. Their operations generally require larger areas to set up and some outfitters believe they are less affected by water levels and weather in reaching their declared campsites.

The department will work to design a system that is flexible, equitable, easy to use, and responsive to suggestions for improvement. Any system will require cooperation and patience. Since the voluntary system has been in place for several years, floaters are already somewhat familiar with a declaration board.

The March issue of the *Smith River News* contained final plans for campsite declaration in 1993. If you have comments, or if your group would like a presentation, write or call us at the Great Falls regional office, 4600 Giant Springs Road, P.O. Box 6609, Great Falls, MT 59406 (406/454-3441).

While the department is considering annual rule implementation for the 1993 float season, officials are also revising the 1988 management plan, with an eye to the Smith's long-term future. More than just time has passed since the plan was written, including the Smith River Management Act, hiring of a full-time river manager, establishment of a Smith River Enhancement Account, and three years of significant annual rules regulating use.

Revising the plan is expected to meet several goals:

- Describe a vision for the future condition of the Smith River corridor with a tie to the department's strategic goals.
- Reflect the Smith River Management Act and subsequent Fish, Wildlife & Parks Commission policy.
- Redefine the framework for cooperation with the U.S. Forest Service and other federal and state agencies.
- Strengthen corridor protection through cooperative methods and use of the corridor enhancement account.
- Compliance with the Montana Environmental Policy Act and the State Parks Improvement Policy Act.

Individuals, groups and agencies will be consulted in preparation of the draft revision. The final draft will be ready for general review by the public later this year.—*Doug Habermann, Smith River manager, Department of Fish, Wildlife & Parks, Region Four (Great Falls)*

Film Festival: March 27-April 3

Missoula's International Wildlife Film Festival is the longest running festival of its kind in the world. This year's festival runs from March 27-April 3.

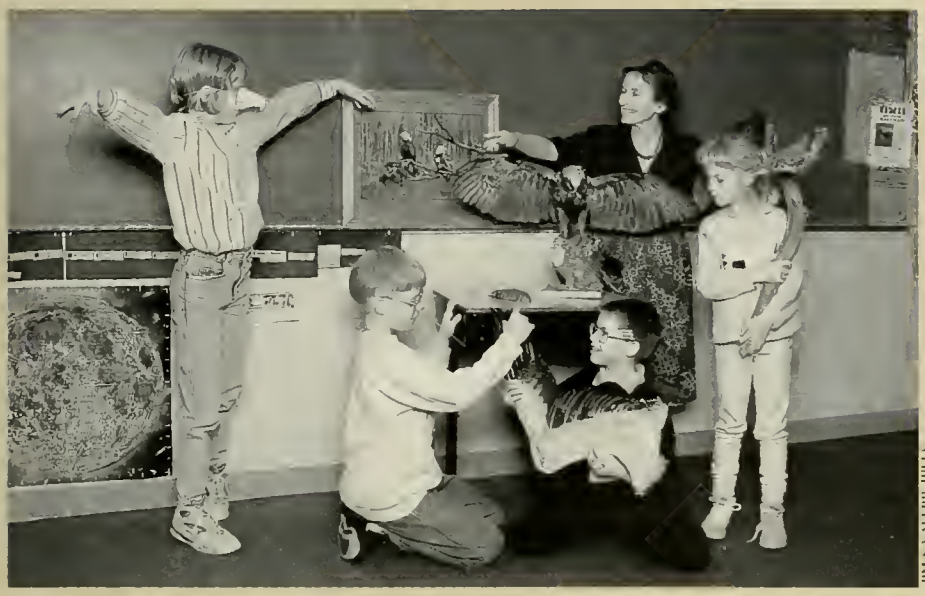
Founded by internationally known bear biologist, Dr. Charles Jonkel, the festival brings together film makers, speakers, and viewers interested in seeing the awesome beauty of wildlife films from around the world.

This year's topics include: "A Showcase of Russian Wildlife Films," "Violence in Wildlife Films," "The Clash of Cultures and Perspectives During Film Making," and "Music and Sound."

For additional information, contact the International Wildlife Film Festival Office at 280 East Front Street; Missoula, MT 59802 (406/728-9380).

Archers Donate Dollars to D.A.R.E.

The Five Valleys Archery Club of Missoula recently gave the city's Drug Abuse Resistance Education (D.A.R.E.) program a shot in the arm. The club sponsored a dinner/auction/raffle which netted over $5,000. The money will be used to provide instructional and incentive materials for students in the D.A.R.E. program in Missoula's elementary schools. As noted by the Missoula Police Department, the archery club's donation "demonstrated a genuine concern for the community and its children." Shown receiving the award and a certificate of recognition are (from left) Wayne J. Benson, treasurer, Five Valleys Archery Club; Jim Oberhofer, City of Missoula chief of police; Doug Chase, Missoula County sheriff; and Dino Fanelli, Five Valleys board member.



Presidential Awardee Carla Wambach discusses the mechanics of eagle flight with her third-grade students at Smith School in Helena. Wambach will spend a week in April in Washington, D.C., as a guest of the President of the United States.

Carla Wambach Wins Presidential Award

Carla Wambach, a third-grade teacher at Smith School in Helena, has been selected for a Presidential Award for Excellence in Science and Mathematics Teaching.

The letter notifying her of the award states, "Through your outstanding accomplishments as a teacher, you exemplify the excellence this program is designed to recognize and encourage."

A national selection committee of prominent scientists, mathematicians, educators, and past awardees reviews the state winners and makes recommendations to the National Science Foundation for national winners. The Presidential Awardees are notified by The White House.

Wambach will spend the week of April 27 in Washington, D.C., as a guest of the President of the United States. She and others receiving the award will participate in a series of activities designed to recognize each of the program's recipients.

As she notes, her students "act wild with a purpose. They are learning to see life in Montana from another creature's point of view." They are encouraged by Project WILD, an award-winning, nationwide environmental program for which Wambach is a facilitator; in 1987, she was named Project WILD's Teacher of the Year for Montana. Her students have visited the Missouri River near Canyon Ferry to watch eagles feeding on kokanee; they have planted trees in an area not far from Helena that was ravaged by forest fires.

As part of the award, Wambach's school has received a National Science Foundation grant of $7,500. Under her direction, the money will be spent over three years to improve school mathematics and science programs.

Check The Eagle On Your Montana Tax Form

Once again this year, you will find something intriguing among the lines and boxes on your 1992 Montana state income tax form. It's an eagle that appears to swoop down on one particular box. That's the box where you can make a difference for many of Montana's watchable wildlife species. Your tax-deductible contribution goes directly to the state's Watchable Wildlife Program.

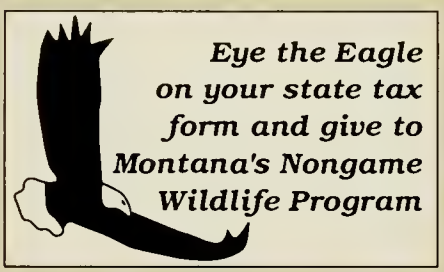
What are Montana's "nongame wildlife species"? They are some of the most watchable of our wildlife. For example, the eagles and hawks we look for perched in trees or soaring above rivers. The birds at backyard feeders—chickadees, sparrows, nuthatches, finches, and many others. Throughout Montana dwell more than 500 species of fish and wildlife that depend on public support each year at tax time.

The Montana Department of Fish, Wildlife & Parks is responsible for managing all fish and wildlife species in Montana—a tremendous task when you consider the size of the state. The wildlife check-off provides a great opportunity for Montanans to assist all wildlife.

What does the Nongame Wildlife Program do for you? A high priority is to help Montanans better appreciate and enjoy the diversity of wildlife surrounding them. The Nongame Wildlife Program has broadened its efforts over the past three years to inform people about the wonders of nongame.

Voluntary contributions to the check-off helped the department contribute information to the "Montana Wildlife Viewing Guide," produce a brochure on Montana's bald eagles, and educate people about watchable wildlife in many other ways.

Ninety percent of Montanans participate in wildlife viewing. It's not only popular, but it also provides an excellent chance to learn about nature's complexity. Nature trails, interpretive signs, and backyard habitat kits are the sorts of vehicles that make watching wildlife even more meaningful and enjoyable. With proper funding and public involvement, Montana's Watchable Wildlife Program can provide such information.



To better understand and conserve watchable wildlife species will take a commitment from many Montanans. If you would like additional information about the Nongame Wildlife Program, contact the Department of Fish, Wildlife & Parks, 1420 East Sixth Avenue; Helena, MT 59620 (406/444-1276). If you would like to make a direct donation, please write your check to the "Nongame Wildlife Program" and mail to the address above. And when you're preparing your tax form, please keep an eye out for the eagle and remember to make a "check" for wildlife.—*Deborah Richie, wildlife interpretive specialist*

Montanans Inducted Into Hunting Hall Of Fame

Thirteen Montanans were honored for their efforts on behalf of wildlife conservation and hunting by induction into a newly established Montana Hunting Hall of Fame. They were honored for their contributions at the Montana Hunting Heritage Banquet in Helena. Awards were presented by Dale Burk of Stevensville, executive director of The Hunter's Alliance, who served as chairman and coordinator of the banquet.

Burk presented Lifetime Achievement Awards to Bob Cooney and Jim McLucas, Helena; Young Hunter of the Year, Jeff Pippin, Glasgow; Conservationist of the Year, rancher Steve Page, Glasgow; and Hunter of the Year, co-winners Dan Jacobs, Kalispell, and Hal Slemmer, Billings.

Seven Montanans were named "Founding Inductees" for their long-time efforts as hunters and conservationists. They included: Don Aldrich of Missoula and Roger Fliger of Billings, both named posthumously; Florence and Ken Baldwin, Bozeman; Howard Copenhaver, Ovando; Winton Weydemeyer, Fortine; and Jack Whitney, Bigfork.

Each was presented a plaque commemorating the induction. A large plaque listing all Hall of Fame inductees will be permanently displayed at the Department of Fish, Wildlife & Parks headquarters in Helena.

BRIAN KENNEDY, HUNGRY HORSE NEWS

Robert Bell of Columbia Falls has been selected by the U.S. Olympic Committee to participate in the Resident Athlete Program for rapid-fire pistol in Colorado Springs, Colorado, where he'll spend the next year perfecting his sharpshooting.

Olympic Committee Tags Robert Bell

Sharpshooter Robert Bell of Columbia Falls has finally hit the big target.

Bell, a member of the Whitefish Rifle and Pistol Club for the last 10 years, has been selected for the Resident Athlete Program in Colorado Springs, Colorado, by the U.S. Olympic Committee.

"I've been wanting to get down there since high school," Bell said. "I'm pretty happy about it."

Bell headed to Colorado Springs in January, where he will live and train for at least a full year.

Bell said he will be expected to put in 20 hours of training each week with his rapid-fire pistol and hit the books at the University of Colorado at least part-time.

Bell is working on a history major after a year at Northwest College in Powell, Wyoming, and a year at Flathead Valley Community College in Kalispell.

Marjorie Svee, instructor and secretary of the Whitefish Rifle and Pistol Club, said Bell is the first shooter from the Valley ever to be selected for the Resident Athlete Program.

"He's a wonderful boy," Svee said. "If any kid has the heart and discipline to make it down there, Bob does."

Bell started shooting competitively 10 years ago with .22 rifles, then switched to air rifles, then air pistols before settling into the rapid-fire division using a .22 pistol.

He handcrafts his own pistol grips out of wood for optimum performance in rapid-fire—a sequence of five shots fired off in eight, six, and four seconds.

"If the grips don't work, you can't shoot," Bell said. "It's pretty common for serious shooters to have custom-made grips."

Shooters must be ranked in the top 20 in the United States before they can apply for the Resident Athlete Program.

Bell said he was approached by U.S. coach Arnie Vitarbo last June, who told Bell he wanted him down in Colorado.

Bell applied for the position in September and found out in late December that he was selected.

"So far, Roger Mar, who shot in the '92 Olympics in Barcelona, and I are the only ones in the program for rapid-fire pistol," Bell said.

Bell said Resident Athletes are chosen based on the Olympic Committee's confidence that they will be able to compete on a World Cup level.

Bell perfected his skills at the North Valley Shooting Foundation on Whitefish Stage Road.

He said his next long-term goal is competing in the 1996 Olympics in Atlanta.—*Mark Going, staff writer, Hungry Horse News (reprinted with permission)*

Have RV, Will Travel

story and photos by JOHN FRALEY

If you love Montana's state parks, don't care about pay, would like a free campsite for the summer, and don't mind wearing a uniform, perhaps you should consider becoming a volunteer park host.

Montana's volunteer park hosts come from all over the United States and from diverse backgrounds. Many are teachers, retired folks, or those who have worked in parks in another state. They range from 22 to 62 years old and share a common interest in the natural and cultural resources of Montana's state parks.

Cecile Duval, Patty Goetz, Sandi True, Don Lanktree, and Billie Lou Cantwell

The statewide Parks Volunteer Host Program began in the mid-1980s and grew to about 50 hosts after a nationwide advertising program in 1990. According to Debbie Cheek, program coordinator in Helena, park hosts have received much praise. "Our park hosts have contributed an incredible number of hours toward making our parks more pleasant places to visit," said Cheek. "We know that our visitors appreciate their assistance as much as we do."

According to Cheek, some hosts come for one or two months, while some stay all summer. Many of the hosts are full-time motor home users. Host Patty Goetz and her husband Paul of Thompson Falls sold their Montana business and bought a motor home. "One Labor Day weekend, we were camping at Logan State Park west of Kalispell," said Patty. "Paul asked if I would like to try being a host, and I told him I'd love to. He talked to the park manager and the next year we were there. Paul got a seasonal park attendant position, and I became a volunteer park host." As host, Patty greets visitors, answers questions, and generally makes people feel welcome. Paul's duties include maintenance, clean-up and handling entrance fees and receipts.

The Goetzes have found that most park visitors are pleasant, but there have been a few exceptions. "We seem to get one each

Paul and Patty Goetz

year," said Patty. "Last year we got him on opening day. He didn't want to attach his park passport sticker to his car, he wanted to be able to transfer it. We politely explained that it wasn't allowed, but he called us every name in the book anyway.

"This year a man already three sheets to the wind drove into the park. He accused us of skimming money off the top, and complained about fees and roads. We gave him a comment card, asked him to fill it out, and send it to Helena. That seemed to calm him down."

To relieve the stress of working a job with nearly unending visitor contact, the Goetzes often turn to humor. "One hot July we never got away from the park; it was go, go, go 24 hours a day," said Patty. "Paul woke up grouchy and I told him if he'd admit he was a diphead, I would too. He said he would; I told him that yes, he was. We started laughing and forgot about our grouchiness."

Now in their fifth season as hosts, the couple has worked at four state parks in northwestern Montana. According to Patty, it's been almost all positive. "I've liked everything but cleaning the toilets," she said. "I leave that to Paul. I've found that you've got to work together. Only one of us is getting paid, but it all goes into the same pot. We're a team."

Don Lanktree, who's been a volunteer for seven years, served as park host with his wife Donna at three state parks in northwestern Montana. According to Lanktree, hosts must be prepared for visitors of all types. "We love people and have always worked with the public in business, the Sheriff's Posse, and Search and Rescue. Park visitors are a cross section of the public; you're going to meet mostly nice people, but you're also going to meet a few who aren't so nice." Lanktree recalled one particularly unpleasant incident at Flathead Lake State Park at Yellow Bay. "There were several people camped in one site—a man, a male friend, a wife, and a 12-year-old," said Lanktree. "The men started arguing about something and the situation became intense. Finally, I went over there because I didn't want anyone to get hurt. I was able to calm them down, and I asked both men to leave the campground. The guys involved came back the next day and asked if they could swim in the lake. We just told them to obey the rules. After that, they came to swim every day for two weeks and were perfect gentlemen. I even began to like them."

While hosting at Flathead Lake State Park—Big Arm, Lanktree and his wife experienced another problem visitor. "A guy came in and said he was going to get us all fired," said Lanktree. "He took photos of the park and said he would send the pictures to the governor. We tolerated him long enough to get him into a campsite and get him to sleep.

"The next day we noticed he wore a hospital band. We found out he'd just gotten out of a mental institution."

Despite a few negative experiences, the Lanktrees have thoroughly enjoyed their host positions. "People often give us lake trout which we save and cook for visitors. It's a way to make people happy and add to their experience."

SEVERAL OTHER HUSBAND-AND WIFE TEAMS serve as park hosts in northwestern Montana. Cecile and Leon Duval, who are retired and originally from Canada, work as hosts to meet people and to achieve a sense of purpose and accomplishment. Billie Lou and Larry Cantwell are full-time motor home users from Texas who got into hosting to learn about Montana parks.

Sandi True, who also serves as a volunteer nurse, got involved in the program after talking to park hosts in a grocery line. True, who works with her husband Don, a paid park attendant host, noted that a positive approach works best. "It's easy to get trapped into seeing the negative side of people," she said. "I'm a volunteer nurse and I've learned about the satisfaction of helping others. When you deal with the public, you learn that you can't please everyone. If you try, you'll burn out. I worked in the mental health field for 20 years. This is really just an extension of that experience."

FEW HOSTS ARE AS POPULAR with visitors as Frank and Bonnie Nance, who serve at Riverside in Canyon Ferry State Park southeast of Helena. Originally from Oregon, the Nances began as visitors to the park in 1991.

Bonnie and Frank Nance

"We are full-time motor home users and were on a cross-country trip," said Bonnie. "We met a former Montanan and he told us to go to Canyon Ferry. We came to the park and really loved it. The day before we were going to leave, we inquired about campground hosts. We were told there was a spot available at Riverside. We checked it out and ended up staying there."

The Nances host a constant stream of visitors at their site against the hillside. Bonnie grows flowers and a few vegetables, and evidence of their interest in rocks and minerals is scattered around their yard. "Frank talks to everybody and makes friends," said Bonnie. "I'm a little more cautious. Everyone always wants to know when Frank is going to smoke more kokanee—he gives it away all summer, and he takes people fishing all the time. He just loves people, and they love him."

Like the other hosts, the Nances have had tense experiences. "One guy finished fishing and pulled up his boat," said Frank. "He lifted up the motor, loaded it in the back of the truck, and then he dropped over into the pickup bed. A couple ran up and got me and we tried CPR on the fellow for 35 minutes until the emergency medical technicians got here. But it was no use; the man had experienced a heart attack. Of course his wife was devastated, so I volunteered to drive her camper back to Missoula.

"Another man died of a brain hemorrhage in the campground. The deaths were terrible, but at least those two guys went the way they wanted to—they died fishing," said Frank.

According to Bonnie, an uninterrupted night at the campground is rare. "We get awakened all the time," she said. "Twice this year Frank had to help people pull their rigs out of the river. One guy's truck, boat and all, went clean into the river. He hopped out and forgot to set the brake. Another time a guy forgot to put in the drain plug and his boat sank. Frank helped pull that one out too."

Jill Melcher

A common problem that the Nances have experienced is the resistance of some visitors to the state parks fee system. According to Bonnie, the problem is mostly with locals. "We've had people from many states here, but it's the folks who live around here who park all over and won't pay fees. People from out-of-state are great at paying; they're used to it. In-staters think that since we're from Oregon, we shouldn't be telling them what to do. Another problem is that some people won't leave when their 14-day limit is up. It's frustrating because we have no enforcement authority."

The Nances find the host positions offer a chance to be together. Family experiences in the past have left them with a desire to help people and make their visitors' stays more enjoyable. "We've been married 32 years and we love children," said Frank. "I married Bonnie after my brother, who was Bonnie's first husband, was killed in a car crash. My three nieces became my three daughters overnight." The Nances went on to have two more children, and they now have 14 grandchildren.

Frank's philosophy of working with people is simple. "If you talk to people decently and explain the reasons behind the rules, they're usually pretty good," he said. "We're here because we want to be."

THE PARKS VOLUNTEER HOST PROGRAM also offers opportunities for students to gain practical experience in visitor relations. While a student at the University of Montana in recreational resource management and a volunteer park host at Flathead Lake State Park at Yellow Bay, Jill Melcher found out firsthand the benefits of working directly with the public. "I had so many positive experiences," said Melcher. "I talked to one older couple from Libby for two hours. And they even gave me a lake trout for dinner."

According to Melcher, the few problems she ran into were related to people not wanting to pay the entrance fee. "One lady simply refused to pay. She said she'd only be here a minute. She became very irate when I told her that the rules state everyone must pay. She kept comparing me to her kids and accused me of being a smart-behind.

"She demanded an apology and threatened to make a complaint if I didn't give her an apology. I didn't feel I owed her one. It was difficult and I got upset, but it's all part of dealing face-to-face with the public."

The next time Melcher encountered a difficult visitor, she was more prepared. "One woman, her husband, and several kids stopped at the park and asked if they could drive past a barrier to unload their gear. I told them that I couldn't let them because of the rules designed to protect the park. Then she asked me if they could have a fire in a no-fire area. I again politely told her no. She got furious, threw all their gear back into the car, and said to her husband and kids, 'Let's get out of here!' Then she turned to me and growled, 'You sure stick by the rules, don't you!' I told her to have a nice day."

The volunteer park hosts perform a valuable service for Fish, Wildlife & Parks and visitors to Montana's state parks. They work long hours, receive no pay, tolerate the occasional impolite person, and give up other pursuits during their summer. But all the hosts agree it's worth it.

"I had just bought a fly rod and wanted to get into fly-fishing while I was in the Flathead," said Jill Melcher. "I met one visitor who spent a lot of time showing me the flies he had tied. Finally, he gave me 20 beautiful flies; I just couldn't believe it. If I had to sum it all up, I'd say the benefits outweigh the bad times." ■

HABIT

take a deeper

AT
Look

Painting by Harold (Rich) Stevenson

The world beneath the water's surface is a mystery to most of us because we are terrestrial animals living on dry land. In this poster, we invite you to take a peek beneath the surface to gain a better understanding of the aquatic ecosystem.

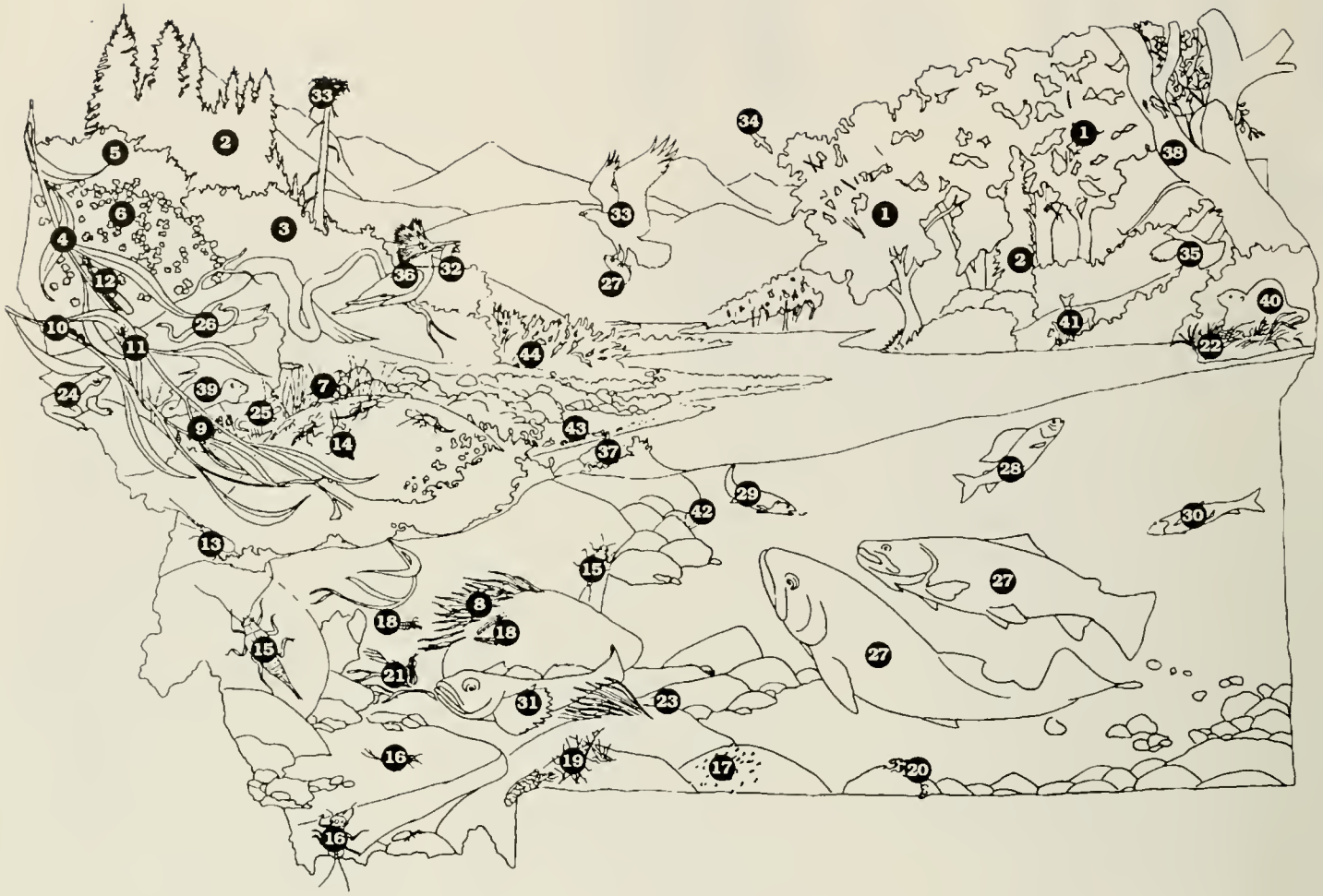
Montana waters sustain 85 fish species. Fifty-five are native, and 30 were introduced. Some, like the fluvial (stream-dwelling) Arctic grayling and cutthroat trout in the poster, have a very restricted distribution today compared with their ranges in the early part of this century. Habitat degradation and competition from exotic species are the primary reasons. If they, and others like the pallid sturgeon and bull trout, are to be a part of our heritage, then we must foster a deeper understanding of the complex ecosystem that fish survive in.

"Take a Deeper Look" is a challenge to do just that . Livingston artist and fisheries biologist Harold (Rich) Stevenson created this work as a gift to his daughters. He donated several hundred hours so that the gift might be shared with school children across the state. To obtain a copy of the poster, contact Kurt Cunningham, Project WILD coordinator, Department of Fish, Wildlife & Parks, 1420 East Sixth Avenue; Helena, MT 59620 (406/-444-1267). The accompanying education packet will be available in mid-March. In addition, the poster is available in a limited edition of 850 signed and numbered prints; for information contact the artist at 204 South Fifth; Livingston, MT 59047 (406/222-0341).

The poster and educational packet were produced by the Montana Chapter of the American Fisheries Society under the guidance of the Extension Education Committee. Funding for printing of the poster came from the Montana Department of Fish, Wildlife & Parks; U.S. Forest Service, Northern Region; the Bureau of Land Management; and Montana's Watchable Wildlife Program.

American Fisheries Society
MONTANA CHAPTER

SPORT FISH RESTORATION



Key to Habitat Poster

1	cottonwood	16	mayfly nymph	30	longnose sucker
2	conifers (spruce and fir)	17	midge pupae	31	mottled sculpin
3	red-osier dogwood	18	caddis larvae (case-building)	32	longnose dace
4	willow	19	caddis larvae (net-building)	33	osprey
5	golden currant (gooseberry)	20	caddis larvae (free-living)	34	bald eagle
6	woods rose	21	caddis (emerging pupae)	35	ruffed grouse
7	horsetails	22	freshwater mussel	36	belted kingfisher
8	filamentous green algae	23	snail	37	American dipper
9	morels	24	leopard frog	38	mountain bluebird
10	ant	25	tiger salamander	39	mink
11	leaf beetle	26	common garter snake	40	river otter
12	salmonfly (adult stonefly)	27	cutthroat trout	41	white-tailed deer
13	caddis (adult)		(Yellowstone)	42	beaver (skull)
14	stonefly cases	28	Arctic grayling	43	bear (tracks)
15	stonefly nymph	29	mountain whitefish	44	cottontail rabbit

DAVIS WINS

1993 Waterfowl Stamp Contest

First place — Darrell Davis

by WILLIAM PHIPPEN

Darrell Davis is an unassuming man. Yet at this stage in his artistic career, Davis, a wildlife artist now residing in Helena, exudes a quiet confidence in his artistic abilities.

As a self-taught limner of things wild and free, Davis, who was named the winner of Montana's 1993 Waterfowl Stamp Contest, gave up an adolescent interest in art to pursue a more financially stable career.

Second place — Zee Huang

Third place — Ken Strabeck

But after earning a college degree in education and teaching elementary school in Michigan for 16 years, his life changed dramatically. He became a born-again Christian, married a woman who encouraged him to once again put a brush to canvas, and moved to Oregon. "The urge to paint overcame me again," says Davis, "and it's been the driving force in my life ever since. God gave me this talent, and if I don't do something with it, it will waste away."

Davis' love of hunting and fishing and his years in the woods have given him a familiarity with animals, their habits, and their habitats that he could not have obtained in any other way. This familiarity is apparent in his beautiful rendition of a pair of harlequin ducks backdropped by the rushing waters of a mountain stream that a panel of judged selected from among 16 other entries as the 1993 contest winner.

"You can always tell when an artist is painting something he or she does not know well," says Davis. "The perspective will be just a bit off, or the animal will be shown behaving in a slightly unusual way."

Davis, who moved to Helena with his wife, Karen, in August of 1991, says he didn't know exactly how to measure his artistic abilities against other wildlife artists until he was selected as the runner-up in Oregon's 1986 Wild Trout Stamp competition. "It was then that I knew I was on the right track," he says. Since then, his reputation as an accomplished purveyor of wildlife and their habitats, and subsequently his career, have been on fast forward.

In addition to winning Montana's 1993 Waterfowl Stamp Contest, Davis was the winner of the 1987 and 1992 Oregon Wild Trout Stamp/Print competitions as well as the 1988 Oregon State Waterfowl Stamp Contest.

Of his selection as the winner of Montana's competition, Davis says, "It means a lot to me, certainly not only for the recognition associated with it, but also because it took me 50 years to get to Montana, a place I now know I should have been long ago. This is Montana's competition and I'm a Montanan now. I feel like I'm home."

Paintings by Zee Huang, Hamilton, and Ken Strabeck, Great Falls, took second and third place, respectively. ■

A FASCINATION WITH ELK SOCIETY

I read with interest John Vore's article, "Bull Talk," in the November/December issue of your magazine. It brought up a question that the author might be able to answer.

This last October while hunting elk here in New Mexico, I saw a young bull with antlers about 12 inches long, pretty much straight and still in velvet. All of the other bulls we saw were out of velvet, and the rut had started.

My question is: Was this yearling a late-bloomer, or a bull that had been born early and had a step up on his peers? In size, he was about as big as a small to medium cow.—*Bob Alexander; Milan, New Mexico*

• *I think it's wonderful that people take an interest in and ask questions about the animals they hunt and watch.*

I guess "late-bloomer" best characterizes the spike bull to which you referred. Just as people don't mature at the same rate—for instance, we don't all go through puberty at exactly the same age—so it is with elk.

The animal you saw in October 1992 was a yearling, born in the spring of 1991. It's not uncommon for yearlings to retain their velvet. Some yearlings never rub it off and so lose their antlers in the spring with dried velvet still on them. There was nothing wrong with him; he was completely normal. He just didn't develop as fast.

As mentioned in my article, all yearling bulls have later and lesser hormone production during the rut than do older bulls. In the fall, shortening days is the external stimulus that sets in motion a host of hormonal changes. These manifest themselves in both cows and bulls as the physical and behavioral changes associated with the rut. Given variation among individuals, it's not surprising that some yearlings, like the one you saw, are just a bit behind their cohorts. Incidentally, I've seen yearling bulls in the fall which not only still carried their velvet, but with antlers incompletely hardened as well.

Among physical changes in bulls is antler hardening and an increase in testicle size which in turn results in increased sperm production. Behaviorally, the changes are those which you and I thrill to each fall—the frenzied activity of the rut, that wonderful bugling, harem-tending, wallowing, tree-thrashing, fighting, rutting activity.

Interestingly, all that frenzied activity is itself an external stimulus for rutting elk, cows and bulls alike. The sights, sounds, and smells of the rut actually help the rut along. They elicit behaviors and influence hormone production and release.

An isolated bull during the fall will still bugle, wallow, and thrash trees. But add another bull and the activity increases. Add a cow in estrus and there will be yet more activity. In a smoothly functioning elk society with lots of cows and a full complement of mature bulls, we've got the stuff that Discovery Channel specials are made of!

An elk population without older bulls is not only missing those bulls mature enough to physically respond to environmental cues, but those which can create and respond to behavioral cues as well. This is a major reason why older, physically and behaviorally mature bulls are such an important part of an elk population.

Another, however unlikely, possibility concerning the spike you saw is that it was born about a month later than normal, in which case he would not have had as long to develop. Most cow elk are bred the first time they come into heat in the fall. Occasionally, though, a few do not get bred and will come into heat again in 20 to 25 days. They may do this three or four times if they don't get bred. The yearling bulls I've seen where I thought this might have happened were noticeably smaller and had short (four- to six-inch antlers) fully in velvet.

Elk society, like any natural system, is complex, intricate, and dynamic. We humans are just barely starting to plumb the depths of its mystery—but, oh, what a fascinating and wonderful thing it is. Thanks for your interest.—John Vore

AN EXCEPTIONAL PIECE OF JOURNALISM

As a resident of the Choteau area, I read with great interest Bruce Auchly's article "Waterfowl Skies Over Freezout" in the September/October 1992 issue of *Montana Outdoors*.

Bruce's broad perspective—historical, biological, social—really made for an exceptional piece of journalism, readable and informative.

I've driven by Freezout numerous times since my childhood and have only come to appreciate its uniqueness in recent years.

Although I'm just an amateur bird enthusiast, Freezout continues to offer many learning opportunities. Thank you for broadening my education with your excellent article.—*Mary Sexton, The Nature Conservancy Pine Butte Swamp Preserve, Choteau*

CONTRARY TO MAINSTREAM VALUES

Jim Heck ("Winning the War," July/August 1992) fancies himself a military strategist, but I don't want him leading my troops. He has made the huge mistake of letting the enemy define the terms of battle.

When issues are argued in court, they are argued with facts and laws. Plaintiffs and defendants get equal chance to present their sides of the argument and "reasonable people" decide the issue.

When issues are argued in the court of public opinion, facts and laws often have little to do with the outcome. Attackers almost always win. Animal rights activists have always attacked. They have been successful by picking the issues, distorting the facts, and misleading the public. They have often played one animal user group against another and have benefited from the inaction of unaffected user groups.

In recent years, activists have had less success because user groups have banded together, begun to define the issues, and let the public know what the true agenda of these activists is: the absolute cessation of any animal use for any reason.

We should gather biological data to ensure that our natural resources are properly managed and to defend our actions as hunters, trappers, and anglers. Without that, we will lose in a court of law. But we can't pick and choose the issues we defend in the media against animal rights attacks. We must attack by showing that the values of these activists are contrary to mainstream values. We must show the uninterested 80% that activists want to radically change the way we live.—*Chuck McCullough; Alvo, Nebraska*

PHOTO ISSUE: BEAUTIFUL, TASTEFUL

Thank you heartily for the magnificent January/February 1993 issue of *Montana Outdoors*!

The photos and excerpts are beautifully and tastefully expressed on each page. You have done extremely well in presenting our unique state.

I do enjoy *every* issue of *Montana Outdoors*.—*Sister M.H. Copenhaver, Conrad*

Book Reviews

THE COMPLEAT MUZZLELOADER, by L. Gordon Stetser, Jr., Mountain Press Publishing Company, Box 2399, Missoula, MT 59806; 1992, 128 pages, soft cover, $15.

As I page through the book, "The Compleat Muzzleloader," by L. Gordon Stetser, Jr., I picture myself browsing through the Montana Homeland Exhibit at the Montana Historical Society Museum. I pause at the corner titled "Indians' World." The display includes information about the journey of Lewis and Clark and other early frontier explorers. In a long glass case by the railing, I see a sleek rifle. The card reads, "Jim Bridger's Rifle, St. Louis Hawken, 1850." I stand in awe before the tool Bridger held to aim, or slung across his shoulder, as he trekked Montana's woods and wilderness. Throughout the museum I see various other rifles, muzzleloaders, shotguns, and handguns, and I realize that one perspective of America's history could be told solely through the gun sight. Stetser has accomplished just that in "The Compleat Muzzleloader."

The book covers the history of the American rifle and handgun, from the original weapons used in the Colonial period to modern-day reproductions. The text is also an easy-to-read introduction to the sport of hunting with muzzleloaders.

Stetser relates early American battles and events from the perspective of the rifle and handgun—from the Germanic colonists who first brought the rifle to America to the colonists altering and adapting the rifle to fit life in frontier America. Stetser notes, "Rifles in the new land needed to be accurate at long range, economical in operation, and easy to handle in wooded country."

Stetser outlines the changes in rifles during the Colonial period. Guns changed in barrel length, bore size, and the amount of metal needed for the barrel. Guns were fashioned with new types of wood and developed a sleek, lighter design.

As well as discussing the physical elements of the muzzleloader, Stetser gives an insight into the Civil War from an artillery perspective and how the rifle and revolver shaped and significantly contributed to the outcome of the war. Stetser also includes interesting information about the weapons used by assassins, generals, and war chiefs in Colonial and frontier America.

Following the descriptions of original muzzleloading methods, Stetser describes in detail what Civil War era reproductions are available today. The book also describes how to load a muzzleloader, with detailed illustrations accompanying the text.

The final section of the book describes hunting techniques with muzzleloaders and the role of side arms in hunting big and small game. Stetser outlines which rifles and pistols work best at various distances from game.

"Shooting black powder is definitely contagious," Stetser writes. "Once hunters discover just how much fun hunting with an old-fashioned front loader really is, many turn to muzzleloading for at least some of their hunting."

"The Compleat Muzzleloader" closes with a description of past and present rendezvous. Stetser describes the rendezvous as "a political, economic, and social microcosm that helped shape the American character and nation." Its main purpose was to provide a place for traders to exchange furs, but the need to socialize and gather prevailed as the fur trade disappeared. Now the rendezvous is a time of gathering and remembrance of the fur trader era. Camp reenactments, skirmishes, and shooting matches combine to give the modern romantic a chance to relive history.

"Rendezvous and Shoot Dates" are listed by state in one of three valuable appendices; the other two catalog "A Directory of Black Powder Trade" and "Black Powder Hunting Regulations."

Stetser is a free-lance writer living in Huron, South Dakota. His work has appeared in *Dakota Outdoors*, *Gun World*, *America's Civil War*, *American Hunter*, and *Backwoodsman*, among others. He wrote "The Compleat Muzzleloader" with beginning sportsmen and women in mind, to provide them a well-rounded perspective to shooting these "primitive" guns and to teach them about the vital role of muzzleloaders in America's history.—*Bridget E. Moylan, free-lance writer, Missoula*

CAREERS IN THE OUTDOORS, by Tom Stienstra, with Robyn Schlueter, Foghorn Press, 555 DeHaro Street, The Boiler Room #220, San Francisco, CA 94107 (800/842-7477); 1992, 406 pages, soft cover, $12.95.

So you like the outdoors. Are you contemplating changing jobs? In college and considering a new major? Living in a city and think you've just about had it with lines, people, cars, noise, and crime? Retired and think you might want to earn a few extra bucks? A student pondering a new angle to finding a summer job or just a way to pick up some spare cash on weekends? Maybe you ought to page through Tom Stienstra's "Careers in the Outdoors."

This is really a reference book, because it answers every conceivable question you might have about a particular outdoor vocation. Among the 50 "great outdoor jobs" Stienstra examines are: bicycle tour leader, canoe rental service operator, fishing guide, game warden, lookout tower spotter, public affairs officer, radio show host, surfing instructor, tree planter, windsurfing instructor, youth camp director. Yes, he includes "writer."

The book is logically organized, with sections on "Dreams," "Nightmares," "Realities," and "What It's All About" for each job. Then he presents a "Career Case Study" where somebody who actually holds such a post discusses requirements, prospects, benefits, pay, negatives, and speculates about the job's future. The case studies are helpful, chatty, easy to read, and, most important, realistic and believable. A list of references completes the section for each of the 50 jobs.

Stienstra is outdoor editor of the San Francisco Examiner and camping editor of *Western Outdoors Magazine*. He was named Outdoor Writer of the Year by the California Outdoor Writers Association in 1990 and 1992.

The information sheet accompanying the review copy noted, "Whether you're interested in making a hobby pay or developing a full-time career, this book has the information you need." I agree, and so will you.—*Kay Morton Ellerhoff*

CONTRIBUTORS

• Four of every five Americans watch wildlife. And it's heartening to know that just about everyone values seeing wild animals outdoors. But there's a complicated question **Deborah Richie** poses: "...How many viewers watch safely and responsibly?" We are "Outsiders Looking In" and Richie's message is that watching wildlife takes ethics. She suggests that we learn more about animal behavior—that the twitch of an ear of the ruffling of feathers can mean that an animal is alarmed by our presence. She suggests that we learn to be quiet, and that we realize that wildlife watching takes practice and patience. The cost of disrupting wildlife is staggering. In Glacier National Park, between 1983 and 1992, park rangers killed 23 black bears, seven grizzly bears, two mountain lions, a white-tailed deer, a mule deer, and a pine marten involved in conflicts with visitors. Approaching wildlife can cause stress that shows up much later—if frightened only once, a caribou may require an additional two pounds of food. Her article is an in-depth look at the problems; it also includes some positive answers to the wildlife-watching dilemma. Such as building a blind so animals can be observed without being disturbed. Her suggestion: "Watch, and wildlife may yet show us how to live within ecological bounds." Richie is a wildlife interpretive specialist for the Department of Fish, Wildlife & Parks, working in a cooperative agreement with the U.S. Forest Service. From 1989-91, she was the department's watchable wildlife specialist in Helena. Her thought-provoking article leads off this issue (page 2).

* * * * *

• Mount Haggin Wildlife Management Area truly is a "Lands Legacy." Lying at the base of the Anaconda-Pintlar Mountains, its importance is hard to overestimate, particularly because it's so close to Butte and Anaconda. As **Bernie Kuntz** writes, one of its strengths is that it serves as a model for the compatibility of cattle grazing and wildlife. In the wildlife category, it contains essential habitat for an elk herd that provides as many days of hunting recreation on a per-acre basis as any in the state. It has a healthy mule deer herd, one popular with area hunters. Although antelope are relative newcomers, about 40 to 50 frequent the area and the number is growing. The WMA also provides nesting and brood-rearing habitat for greater sandhill cranes, and it contains one of the wildlife viewing routes detailed in the "Montana Wildlife Viewing Guide." In the grazing category, rest-rotation systems have been designed to protect stream banks. Under the grazing system, two-thirds of the area is set aside in summer, and wildlife take advantage of it. Distribution of livestock within the pastures scheduled for grazing is accomplished through herding so cattle don't stay in one place for too long. Mount Haggin's grazing systems have positively influenced how many private landowners run their own grazing operations. The result: solid wildlife production AND a viable livestock operation. For a peek at Mount Haggin, "A Home Where Elk and Cattle Roam," turn to page 8. Kuntz is the department's information officer in Bozeman.

* * * * *

• **John Fraley** is the department's information officer in Kalispell, and he is currently teaching a course in technical writing at Flathead Valley Community College. But there's nothing technical about Fraley's contribution to this issue. In fact, it might cause you to make a sign: "Have RV, Will Travel." It's the story of Montana's volunteer park hosts, folks who share an interest in the natural and cultural resources of Montana's state parks. As Fraley writes, some are teachers; some are retired couples, and some have worked in parks in another state. They come from all over the country and range in age from 22 to 62 years old. They greet people. They help get visitors out of sticky situations. They even help people pull their rigs out of the river when someone forgets a drain plug or neglects to set a brake. Simply put, they make our parks more pleasant places to visit. Fraley's article, for which he also took the photos, begins on page 15.

* * * * *

• This is one of those stories that just makes you feel better for having read it. For a start, it's a positive tale of how trout fishing on the upper Missouri River has improved. The story focuses on how those improvements came into being. Nobody was more important to those efforts than Ray Doig. Mr. Doig was killed in an automobile accident more than a year ago, so he never had the chance to see what his single act—the unauthorized opening of a head gate—would ultimately do for the upper Missouri River trout fishery. Turn to page 26 for **Jeff Stoffer's** article, "Second Genesis for Trout." Stoffer is the editor of the Townsend Star. He has been a newspaper reporter and editor in Idaho, Washington, and Utah. He is completing a book about life along U.S. Highway 95 through Idaho for Washington State University Press.

* * * * *

• Turn to page 18. And don't peek at page 20. For starters, try to find morel mushrooms. Then look for a leopard frog and a tiger salamander. Then try for a caddis fly in four different stages of development. If you succeed with that, you should have no trouble with an osprey, a belted kingfisher, and a river otter. "Habitat—Take a Deeper Look" was created by Livingston artist and fisheries biologist Harold (Rich) Stevenson. As Stevenson notes, nearly three years has passed since fisheries biologist Wade Fredenberg came to him and proposed the idea of an educational poster for Montana schools. The project has been an ambitious one and the artist is thankful for those "resolute individuals" who kept it alive (among them Kurt Cunningham, John Fraley, Dr. William Gould, Chris Hunter, Dick Kramer, Lori McCollim, John Miller, Mark Sweeney, and Bob White). The illustration is a mixed media painting, and it reflects Stevenson's deep appreciation for Montana's fish and wildlife resource and the unique opportunities it offers. Stevenson's work has appeared in many shows and publications including the C.M. Russell Show and Auction in Great Falls, Wild Wings Wildlife Sporting Art Collection, "Symbols of Montana," and "Fishes of Montana." The depiction of the original painting used for "Habitat—Take a Deeper Look" is available as a signed and numbered limited edition of 850 fine art prints. For more information, contact Stevenson at 204 South Fifth; Livingston, MT 59047 (406/222-0341).

* * * * *

• *MO* thanks the following photographers for their contributions to this issue: **Phil Farnes**, Bozeman; **Brian Kennedy**, Hungry Horse News, Columbia Falls; **Nelson Kenter**, Missoula; **Kourtnie Magness**, Anaconda; **Richard Mousel**, Fort Benton; **George Schuyler**, Billings; **Judith E. Strom**, Whitehall; **Bill Swanson**, Kalispell; **Paul Updike**, Townsend; **George Wuerthner**, Livingston, and **Gary R. Zahm**, Los Banos, California. Thanks also to the following contributors who work for the department: **John Fraley**, Kalispell; **Bernie Kuntz**, Bozeman; and **Ron Spoon**, Townsend.

SECOND GENESIS FOR TROUT

by JEFF STOFFER

IT'S LATE JUNE 1991, the seventh of eight straight drought years in the upper Missouri River Valley, and two men of stereotypically opposed interests are tromping through the last trickle of Dry Creek's spring runoff. One of the men, Ray Doig, is a life-long Broadwater County landowner, former county commissioner, and a rancher/farmer who for decades has relied on the agricultural lifeblood of the valley—irrigation water diverted from the Missouri River and its tributaries. The other man is fisheries biologist Ron Spoon, a newcomer to the area, whose challenge is to convince irrigators that a new water diversion is needed—not to save crops from withering, but to restore trout spawning beds.

In silence, they cross Dry Creek, which drains down the rugged gulches of the lower Big Belt Mountains before intersecting the Broadwater-Missouri Canal, an irrigation ditch that flows through about 50 miles of the county. The water is low, and it will get lower before drying up completely, an annual occurrence during irrigation season for decades.

Nervously, Spoon breaks the silence and tells Doig to watch his step. He may plant a foot into a bed of new eggs laid in the gravel during the spring spawn. Doig, wearing worn coveralls and holding a video camera on his shoulder, stops abruptly and says, "I wonder how many thousands of fish eggs I've stepped on over the years."

They continue wading upstream. Spoon checks a trap he has set to count the number of new rainbow fry this summer. Doig rolls the videotape and catches a glimpse of disappointment cross Spoon's face. Spoon looks in the trap, then at the low flow of the stream. He fully expects thousands of the fry to perish when the creek goes dry. Irrigators from Grassy Mountain south will have drained it to bring life to Broadwater County's leading industry—agriculture. Doig listens quietly as Spoon describes the dilemma. Spoon doesn't expect much sympathy. It is, after all, a drought year. Spoon finishes his trap-checking, wondering about the futility of his work, and the two men climb into their pickups and go separate ways.

"THE NEXT DAY, I THINK IT WAS JULY 1, I returned to Dry Creek and found plenty of water and large numbers of rainbow fry in my trap," Spoon says. "The previous evening, Ray traveled upstream and began releasing water from the Broadwater-Missouri Canal into Dry Creek. The primary users of the water were not formally notified. It was a matter of opening the head gates and asking questions later."

That's when Spoon really got nervous. The newcomer did not fully understand the depth of Ray Doig's influence in Broadwater County, a place where if one of its prominent citizens decides to forfeit some irrigation water to save some fish, that's what happens. No questions asked.

Doig's individual turn of the faucet launched a wave of cooperation between Broadwater County landowners and the Montana Department of Fish, Wildlife & Parks (FW&P). Now, the landowners and biologists work in unison toward restoring depleted trout populations of recent years on the upper Missouri.

Landowners up and down the valley have been quietly changing a way of life. For generations, they have been drying out Missouri River tributaries to feed ditches and canals that water their fields. Now, things are different. They carefully keep the creeks flowing with clean water until after the new trout have moved out of the stream. They have abandoned the trout-unfriendly practice of flushing the winter's build-up of tumbleweeds, sediment, and other debris down Dry and Deep creeks at the opening of irrigation season, burying the lower-end spawning beds.

Landowners are also taking a closer look at the way stream banks have been eroding. Tons of earth yearly slough into the streams, clogging spawning beds. After allowing FW&P to measure the extent of erosion on the banks, some landowners began fencing them, giving the riparian environment a chance to rejuvenate. Landowners have not only made these changes voluntarily, they have done so with a sense of proprietorship for the county's fishery.

Radersburg-area rancher Maurice Ferrat has stood knee-deep in tiny Marsh Creek, which runs through his property, and helped biologists milk brown trout eggs in a temporary holding pen. "These fish were conceived on my property," he said after the eggs he helped milk returned as fingerlings to the Missouri a year later.

All these acts of cooperation from landowners have been essential to FW&P's

PAUL UPDIKE

In the mid-1980s, trout populations began to decline in the Missouri River between Toston Dam and Canyon Ferry Dam. Since 1990, FW&P biologists and area landowners have worked to restore them by keeping water flowing in spawning tributaries, curtailing erosion, and protecting stream banks.

trout repopulation project. "They've treated these streams as water delivery systems," says Spoon. "That is the change."

Since the mid-1980s, brown and rainbow trout populations have rapidly fallen on the upper Missouri. The stretch between Toston Dam and Canyon Ferry Dam is designated as a Class 1—or "blue ribbon"—trout fishing area. Canyon Ferry Reservoir north of Townsend is Montana's most popular state recreation area, with more than 200,000 visitors a year. Its economic impact for the state was estimated at $6.5 million in 1989. That was before anglers began giving up on the declining fishery. In the last three years, businesses in Townsend have suffered through the trout depletion, no longer drawing the motel and restaurant traffic they did when creels came back full of trout ranging from one to three pounds. A Townsend tackle store and guide service closed its doors in 1987. State concessionaires who operate marinas and stores along the reservoir's perimeter have seen their boat slips go vacant. As the fishing swung downward, a movement was launched to turn Canyon Ferry Reservoir into a walleye fishery.

The aquatic system was ailing, and one reason was the practice of severing creeks from the Missouri River during irrigation season, which coincides with the spring hatch and migration of new trout fry. Nearly a decade of drought has worsened the situation. Creeks were run dry earlier in the year and for longer durations.

A little more than a year after the department's repopulation effort began in full, the trout fishery and habitat have dramatically improved. Biologists still await conclusive results from the work, but when they cast their fish-counting gill nets at 18 locations in Canyon Ferry Reservoir last fall, they collected a record number of rainbows. In recent years, biologists have counted between four and seven fish per net. This past fall, the nets averaged 18.2 rainbows. The largest previous collection, in 1986, turned up an average of 16.7 rainbows per net. In part, the increase is attributed to a switch from the Arlee strain to wild Eagle Lake and DeSmet rainbows. Improved spawning habitat has been a simultaneous, essential ingredient.

The trout project includes three main elements: one, a specialized stocking technique for brown trout that mimics wild reproduction; two, the switch from Arlee rainbows that live only two or three years and won't spawn on their own to the wild strains that live five to seven years and can successfully reproduce; and three, management of the region from Toston Dam to Canyon Ferry Dam as one unified circulatory system. Landowners have helped link the system's veins and capillaries. The clots have been removed.

The work was begun for a variety of reasons. First, there was the meager fishing. Funding for such a project also became available through the Department of Natural Resources and Conservation's (DNRC)

Toston Dam Mitigation Project. That money came after the DNRC added a turbine to the 50-year-old dam three years ago, an addition that was expected to cause significant fish losses. Largely, that is what's paying for the trout habitat improvement work now under way.

"We felt that when we started this project in 1990 that it would take four or five years to reach the goal of 20 trout per net," says FW&P's Region Three Fisheries Manager Richard Vincent. "We're almost there in three. Another year and we're definitely there."

FALL OF 1991 IS NEARING.

Doig and Spoon are wading up Deep Creek. Spoon is pacing off the number of feet of eroding stream bank. They are finding exposed banks six to 10 feet high and 50 feet in length. A little more of the bank slides into the stream with each new spring runoff, partly because the vegetation, which holds the stream bank together, is missing. Over the years, the plants have been removed, the stream shortened in places, narrowed, and rechanneled. Its natural dynamics have been reordered by human hands.

Doig watches Spoon measure the bank. A low-level aerial survey of the creek has given him a map from which to identify problem areas and monitor them.

Doig has a different measurement method in mind. "I can tell you how to measure it," Doig tells Spoon, pointing upstream to two fence posts suspended midair over the vanishing bank. "See those two posts? I've been watching some posts upstream for a few years. There used to be two in the air upon one place. Now there are six."

Doig, Spoon, three scientists from the Water Quality Bureau of the Montana Department of Health and Environmental Sciences, and the U.S. Soil Conservation Service's Larry Robertson walked about 19 miles of Deep Creek, measuring erosion from the mouth of the stream to the Helena National Forest boundary. Landowners along the way gave permission to conduct the study. They measured 165,765 square feet of eroding bank, approximately 3.8 acres. Earlier in the year, on a lower stretch of the creek surrounded by pastures, Spoon measured more than 24 tons of sediment moving downstream in one day. "Those banks were sloughing a lot of material," he says. "The problem here is that landowners are losing their pasture, and their pasture is ending up on fish spawning gravels."

Livestock contribute to the erosion problem, so FW&P has offered landowners along Deep Creek funding to put up fences. The work is paid for through funding sources such as the River Restoration Program, which is endowed by a recent 50-cent increase in the price of fishing licenses. When Broadwater County ranchers John and Chuck Hahn signed a contract in October to fence their cattle away from Deep Creek, the Upland Game Bird Habitat Enhancement Program was designated as the funding source because plants along streams are not only helpful to fish, but also to a variety of wildlife, including pheasants.

Broadwater County landowner Ray Doig watches as spawning-bed gravels for trout are dumped and spread in Confederate Creek. Trout from Canyon Ferry Reservoir have found their way to the new beds, created in September of 1991.

Agricultural water users of the region are looking at the environment differently these days. "For generations, the stream was dewatered, and the riparian growth was in poor shape," Spoon says. "For a person growing up here, that's the way it always looked. They didn't see it as being unhealthy. That's just what it looked like."

"Since 1940—that's when the first water came down the canal—we *always* dumped all the Russian thistle and debris from the winter down Deep Creek," explains Robert Davis, chairman of the Broadwater-Missouri Water Users Association. "We did it until 1992." That was when Spoon went to the board and explained that the practice was burying the spring trout spawn. The water users did not realize it. "We said, 'Hey, if this is important to the fish, we can't keep doing it—covering up their beds with silt and trash.' Not being in fish management, we just weren't aware of any negative effect."

The board owns a $100,000 excavator, and last spring Davis and other water users put it to work clearing the Broadwater-Missouri Canal of winter build-up. They spent 36 sleepless hours working section by section as the season's initial irrigation water flowed in. Deep Creek was saved from an avalanche of mud and tumbleweeds that would have buried a quarter of a million trout eggs downstream.

The benefit was twofold, Davis says. "We've run with less water out of the Missouri River than ever because this is a clean canal. And we've got a good fishery."

Meanwhile, landowners are continuing their practice of rewatering the creek and limiting their draw during the trout incubation period. They've made sure at least some water flows between the canal and the creek mouths, the sections that usually run dry. "We needed just enough water to keep spawning gravels wet, enough for a one-

inch fish to migrate over a riffle," Spoon says. "We had a solution. We asked for a small amount of water for a specific period of time."

Irrigators also have had to schedule chemical treatments of the canal—the yearly dose of acrolein which kills algae and moss—around the incubation period. Before, they only had to schedule the treatments among themselves. "That time of year, it wasn't a hell of a lot of sacrifice," Big Springs Ditch Chairman Ted Flynn says. "If they'd have said we needed this in the middle of July, it might have been different. But this is mutually beneficial. We're really pretty easy to get along with." All they needed to do was stagger their treatments to allow one ditch to rewater the creek while another was in the toxic period. For the irrigators, much of the transition has been a matter of timing.

"We're not taking any water away from anyone," says Davis. "We used to manage this thing for our benefit only. Now, we can do it for the fish, too, and not hurt a soul."

RON SPOON

Vegetation has grown back, and summer waters now flow at a trout-friendly rate on lower Deep Creek. Stream bank grazing practices have changed, and irrigators make sure there's enough water in the creek for young fish to make it downstream.

IT IS A WINDY SEPTEMBER AFTERNOON IN 1992 near the base of Toston Dam. Jack Boyce, manager of the Big Springs Hatchery in Lewistown, backs an FW&P tanker truck down a boat ramp, and climbs out of the cab and onto the back to begin replacing hatchery water with Missouri River water. Boyce has been careful to match the temperatures as closely as possible to avoid shocking the fingerlings when they enter their new world.

He opens the first four tanks, and foamy fish slime billows into the wind. Spoon is there, standing in the gray water next to Ferrat, the Radersburg rancher, and Jerry Reller, the Canyon Ferry Reservoir concessionaire at Goose Bay Marina. Ferrat has a 35-millimeter camera around his neck. Reller has a video camera. They look something like expectant fathers.

River water has finally replaced tank water. The temperatures are about the same, the river a touch colder. Boyce opens the hatch. The water suddenly boils and pops with fingerling brown trout. They flip and jump through the surface as if not sure whether to swim or to fly.

Brown trout have not been planted in this region since the 1950s. They have been on their own, a self-sustaining, but gradually declining, population. This new batch represents a second genesis for the browns. They are being asked to spawn in the newly modified habitat and start another self-sustaining population.

In nature, brown trout reproduction is complicated and risky. Adults migrate many miles to lay eggs in a specific habitat that only their instincts tell them exists. The eggs incubate in the icy winter water, and fry emerge in the spring. The tiny new fish swirl in the gravel, feeling out their new world. Then, as instinctively as the adults came to spawn, they move downstream. "It's a tenuous situation with many predators," Spoon says. "There is extremely high mortality at that phase of their life."

This summer's stocking of fingerling browns whose parents came from these waters is intended to bypass some of the obstacles faced by emerging fry. Easy routes to modified spawning grounds await them. On Confederate Creek, for instance, which flows into Canyon Ferry about 10 miles north of Townsend, gravel spawning beds were specially prepared by Interfluve, Inc., and FW&P workers. On the lower end of Deep Creek, an elaborate siphon structure was built to allow the Montana Ditch to pass underneath the natural stream. Trout can now swim up and down Deep Creek any time of year. The once-ailing aquatic system is on the mend.

FALL OF 1992. ON LOWER DEEP CREEK, Spoon opens a gate near where the Hahns have kept livestock away from the fragile stream bank for more than a year. The vegetation is growing back. He heads toward a trail that leads past the concrete siphon structure that allows the irrigation canal to pass underneath the natural stream. Just up the trail, Spoon stops at a trap and finds the first brown trout to explore the new, unencumbered spawning route. It is a three-pounder, full of about 2,000 eggs. She has taken a path that wasn't there a year ago. "It'll take a few years for a significant run to be established," Spoon says, freeing the fish to continue upstream. "It'll take some time." All the pieces are in place.

"If it hadn't been for Ray Doig," Spoon says with emotion in his voice, "this would have been a bust. We wouldn't have been able to do a thing."

Ray Doig died in an automobile accident in January 1992. He did not get the chance to see what his single act—the unauthorized opening of a head gate—would ultimately do for the upper Missouri River trout fishery. His wishes, however, are being followed by landowners along the Missouri, and his legacy can be found swirling beneath the surface of Broadwater County waters this year, a new trout population with a chance.

RON SPOON

An underpass of sorts was built in January of 1992 when a siphon tunnel moved the Montana Ditch beneath the natural route of Deep Creek. In years past, the creek was intercepted by the canal and severed from its mouth. Now, water and fish can pass the canal without obstruction.

FROM MISSOURI TO MISSOURI-- FISH ON A JOURNEY

In the fall of 1991, Goose Bay Marina concessionaire Jerry Reller and Radersburg landowner Maurice Ferrat joined biologists on a unique fishing trip up the Missouri River between Canyon Ferry Reservoir and Toston Dam. Using an electrofishing device, the group gathered hundreds of spawning browns and took them to Marsh Creek on Ferrat's ranch property near Radersburg. There, fish were held in captivity until they were ready to lay eggs. Ferrat helped biologists milk more than 180,000 eggs from the spawners.

The eggs were then trucked to the federal Fish Technology Center in Bozeman where biologists waited for them to "eye up"—develop to a point where the fish eye is visible inside the egg. When the eggs were deemed sturdy enough for another road trip, they were taken from Bozeman to Lewistown and the Big Springs Hatchery, where they were raised into fingerlings. Then it was back on the road for 95,000 tiny browns. Stocked in staggered phases due to summer drought conditions, the browns were planted in the Missouri River and Deep Creek, the waters of their ancestry, having come back in a hatchery truck. Unlike browns born in natural streams, these fish did not have to run the gauntlet of irrigation diversions and natural predators, both fish and fowl.

"We incubated in controlled conditions and reared them in controlled conditions and then returned them to the Missouri," says FW&P fisheries biologist Ron Spoon. "The unique part is that they came from the Missouri River, their ancestral waters. The idea was that by supplementing these browns, we would accelerate the spawning runs. This is not the typical stocking of water bodies with fish adapted to hatchery living, which hasn't been successful in Montana's rivers. And we would not be supplementing hatchery brown trout if the project was not closely tied to habitat modification. These fish have been on a journey."

GARY R. ZAHM

Greyhound of the Air

BY DAVE BOOKS

STANDING ON THE SHORE OF FREEZOUT LAKE one evening late last March, I witnessed a spectacle guaranteed to send shivers up and down a waterfowl lover's spine. Several thousand pintails, returning from a feeding foray in the stubble fields east of the lake, streamed past me, their slender, graceful profiles silhouetted against the fading light. Listening to the pleasant cacophony of whistles and quacks as flock after flock of these elegant ducks cascaded into the marsh, it was hard for me to believe the northern pintail is a species in trouble.

Yet, that is exactly the case. The breeding population of pintails in North America has plummeted to about 2 million birds, down from a high of nearly 10 million in 1956. Because they are circumpolar in distribution, ranging farther over the earth's surface than any other species of waterfowl, pintails can hardly be considered threatened as a species. But their rate of decline on the Canadian prairie—the heart of the breeding range in North America—has been a discouraging 11% per year for almost two decades, a rate more than double that of the mallard and most other

GARY R. ZAHM

puddle ducks. Once our most abundant duck, the pintail—or "sprig" as it is often called—is now outnumbered by mallards, wigeon, teal, and scaup, a fact that has waterfowl biologists worried and disheartened.

A large part of the pintail's plight stems from its specialized breeding behavior. Among the earliest spring migrants, they follow the receding snow line north, seeking shallow basins of meltwater when they arrive on the breeding grounds in April. These expanses of temporary water, called "sheetwater," are rich in invertebrate life and vital to the birds' nesting success. In years of average or above-average moisture, when sheetwater is abundant in the northern prairie regions, pintails quickly go about the business of choosing nest sites and laying eggs.

In dry years, however, when sheetwater is scarce to non-existent, large numbers of pintails will continue flying north to the Canadian arctic or Alaska, where many of them forego breeding for the year. Those that do breed are usually less successful, because the long flight has exhausted their energy reserves. To make matters worse, the shallow areas so appealing to pintails on the prairie breeding grounds are easily drained and cultivated during dry years, making farmers' work easier, but further chipping away at the wetland base that waterfowl depend on for survival.

Although pintails nest in a variety of habitats across their wide geographic range, they prefer open grasslands, field edges, hayfields, summer fallow, stubble fields, or tundra. They tend to nest farther from water than other ducks, sometimes more than 100 yards from the nearest pond or lake. They lay anywhere from 3 to 14 eggs, with the average about eight. The hens lay one egg per day until their clutch is complete, and begin incubating as soon as the last egg has been laid. The eggs are incubated for 24 to 26 days, with all eggs in the clutch hatching within a span of eight hours. The drakes are indifferent husbands; they usually desert the hens at the onset of incubation to join other groups of males, and play no part in raising the young.

After molting their primary wing feathers in mid- to late summer, pintails become flightless for about a month. After the molt, hens move with their broods to larger sloughs and marshes, where they begin to prepare for fall migration.

GARY R. ZAHM

PINTAIL NESTING SUCCESS under good conditions, where large blocks of quality habitat are available and predator numbers are low, might run in the neighborhood of 50% to 70%. Pintail populations can grow rapidly under such conditions. But during drought years, especially in heavily farmed areas where upland nesting cover is limited, success may be much lower—some studies have shown it to be 10% or even less. Biologists estimate that a success rate of 15% is necessary just to maintain current numbers.

The fact that pintails nest early, before spring green-up, and choose open areas for nest sites can make them especially vulnerable to predation. Where nesting cover has been reduced to small patches, crows, magpies, gulls, skunks, ground squirrels, raccoons, badgers, coyotes, and foxes take a heavy toll. Also, because the peak of pintail nesting in late April and early May coincides with cultivating and seeding, many pintail nests in summer fallow and stubble fields are plowed under. Although pintails will renest if their first clutch is destroyed, hens who lose their nests late in the incubation cycle are not as likely to do so.

Pintail ducklings are covered with down when they emerge from the egg; they remain in the nest only long enough for their feathers to dry and fluff. The broods are good travelers, often moving long distances to water shortly after leaving the nest. Waterfowl biologist Lyle Sowls, who studied prairie ducks at Manitoba's famed Delta Marsh, observed one pintail hen who took her brood 800 yards—almost half a mile—in the first 24 hours of life.

According to Sowls, hens use a loud, rasping call to instruct their ducklings to stay put, and a low "cheep-cheep" to gather them again after danger has passed. Once her brood is hidden, the hen will try to lure intruders away from the area by flying low in front of them or flapping slowly across the water.

By the time most females are incubating, groups of male pintails begin to gather in shallow sloughs and marshes where they will molt

their primary wing feathers and become flightless for about a month. The males are usually flying again by early August, while the females, which molt later than the males, are flightless until the end of August or early September.

Like most ducks, pintails will change their body plumage twice during the course of the year. They sport a drab "eclipse" or hiding plumage during the flightless period in late summer, which eventually gives way to the brighter (in males) breeding or "nuptial" plumage. Because hens remain a mottled brown all year, differences between the eclipse and breeding plumages are not as noticeable.

The pintail drake in full breeding plumage has a chocolate-brown head, a white "racing stripe" extending up the neck onto the back of the head, a white breast and belly, gray back and sides, and a pair of long, black central tail feathers. The profile in flight is long-necked, sleek, and streamlined—an appearance that prompted Frank Bellrose, author of "Ducks, Geese, and Swans of North America," to call it the "greyhound of the air."

After the molt, hen pintails move with their broods to larger sloughs and marshes, where they join the sizable flocks of males and unsuccessful hens already gathered there. These flocks soon begin to feed heavily in preparation for the fall migration. Where grain is available, they often fly to wheat or barley fields in morning and evening to "carbo-load." But in some areas, pintails feed exclusively on a variety of naturally occurring plants and seeds—bulrush, smartweed, and sago pondweed, to name a few.

IN THE FALL, AS IN THE SPRING, pintails are among the first ducks to migrate, and by the end of September most of them have left the northern breeding grounds. Many of them are bound for California, primarily the Sacramento and San Joaquin valleys and the San Franciso Bay area. Some continue south to the west coast of Mexico, and a few go as far as South America. Most of the Alaskan birds end up in California, as do many of the pintails raised in Canada. But large numbers of sprigs from the prairie provinces and northern Great Plains also migrate to northern Texas, Louisiana, and the Mexican highlands.

Pintails are able to winter almost anywhere that a combination of open water and suitable food exists. On the wintering grounds of California and Louisiana, they feed extensively in rice fields. Loss of habitat in many wintering areas has forced pintails to crowd onto fewer and fewer wetlands, leaving them especially vulnerable to diseases like avian cholera and botulism. The problem is less severe in wet winters, when the birds can spread out over large acreages of flooded rice stubble and other cropland.

With the coming of spring, pintails face perhaps their most difficult challenge: They must begin the long northward migration and simultaneously meet the energy demands of mating and reproduction. They start early, and pause along the way to feed and rest in spring "staging" areas—places like Nebraska's Rainwater Basin, the Playa Lakes region of Texas, the Klamath Basin in northern California, and Freezout Lake in Montana.

Mike Schwitters, a Choteau, Montana, resident who closely monitors the comings and goings of waterfowl at Freezout Lake, doesn't look for robins to herald the arrival of spring. He looks for pintails. "They're the first significant migrants," he says, "and when they get here, I know the others won't be far behind." According to his records, the peak of the pintail migration through Freezout takes

place in mid- to late March. "In 1991, the peak came on March 29, with about 23,000 pintails, but some years it's earlier," he says.

Most pintails reach the breeding grounds in the northern United States and southern Canada by early April, while those nesting in northern Canada and Alaska may not arrive until a month later. If they find the sheetwater and shallow wetlands they are seeking, they will begin laying eggs soon after their arrival. All too often in recent years, they haven't found good breeding conditions, and reproductive success has been poor.

Considering the status of wetlands in the Prairie Pothole Region (see map), where 60% of the continent's pintails breed, it's not

difficult to see why they and other ducks are suffering hard times. In North Dakota, where up to 100 wetland basins per square mile once dotted the prairie in a rich aquatic mosaic, about half of the original wetlands have been drained. Alberta, Saskatchewan, and Manitoba, whose prairie potholes are among the most productive in the world, have lost 40%. Minnesota has lost more than 90% of its marshes and swamps. Nebraska's Rainwater Basin, a primary spring staging area for 30% of North America's breeding pintails, has lost 90%. At the same time that wetlands have been decimated, large blocks of native grassland have been converted to cropland. This reduction in secure nesting habitat combined with poor water conditions in recent years has resulted in very poor production and recruitment of young pintails into the population.

BILL SWANSON

Among the earliest spring migrants, pintails follow the snow line north, arriving in Montana around the middle of March. Drakes in full breeding plumage are pictures of streamlined elegance.

According to FW&P statewide waterfowl coordinator Jeff Herbert, Montana has lost only about 25% of its wetlands, and still retains good grassland habitat in certain locations. As a result, Montana can contribute significantly to pintail production in good moisture years. Preserving our remaining wetlands, he says, is important not just for pintails, but for a host of reasons. "They play a critical role in filtering contaminants, controlling flooding, and recharging groundwater supplies, and provide habitat for countless species of waterfowl, songbirds, shorebirds, mammals, fish, and reptiles."

Despite the downward trend in pintail populations over the past two decades, there may be cause for some optimism. In response to improved moisture conditions on the northern prairies, the pintail breeding population rose from 1.8 million in 1991 to 2.1 million in 1992—a 16% increase. As of this January writing, the drought in California appears to be breaking, and snow conditions in the Prairie Pothole Region look promising. More than anything else, an end to the drought that has gripped the northern plains and prairie provinces through most of the past decade will help pintails escape their downward spiral.

IN THE LONG TERM, many efforts currently under way to restore waterfowl habitat across the continent will benefit the pintail. The North American Waterfowl Management Plan (NAWMP), an international program begun in 1986, has raised and spent more than $240 million in its first six years and hopes to raise another $120 million annually for the next 10 years to achieve its goals. A partnership of state, federal, provincial, territorial, and private organizations, NAWMP calls for securing and protecting 4.7 million acres of prairie pothole breeding habitat in Canada and the United States by the year 2000, and restoring the continental fall flights of ducks to 100 million birds—a hefty increase over the 1989-90 levels of 60 million. The last time we had such numbers of ducks was in the early 1970s.

NAWMP sets priorities between certain geographic areas of concern, called "joint venture projects." One such cooperative effort is the U.S. Prairie Pothole Joint Venture, which includes Montana, North and South Dakota, Minnesota, and Iowa. In Montana, the joint venture has emphasized two areas to date: the Beaver Creek Project in southern Phillips County and the Comertown Project in northeastern Sheridan County (see *Montana Outdoors*, September/October 1989). The major focus of these projects is working with private landowners to create or restore wetlands, improve nesting conditions by constructing islands and nesting platforms, provide upland nesting cover, manage predators, and improve grazing practices.

Ducks Unlimited (DU), a private, non-profit organization dedicated to conserving North American waterfowl habitat, has also launched a new effort to help the pintail. Called SPRIG (Special Pintail Recovery International Group), it is an international program aimed at restoring pintail habitat and populations throughout North America. So far, DU has compiled a great deal of data on pintail biology and requirements, and has begun putting in place programs to restore and enhance critical pintail habitat based on this information. Some of these measures include improving stewardship of breeding areas under private ownership, protecting grasslands from overgrazing and conversion to cultivation, temporarily flooding native hayfields and pasture specifically for spring migration, and improving management of wintering areas.

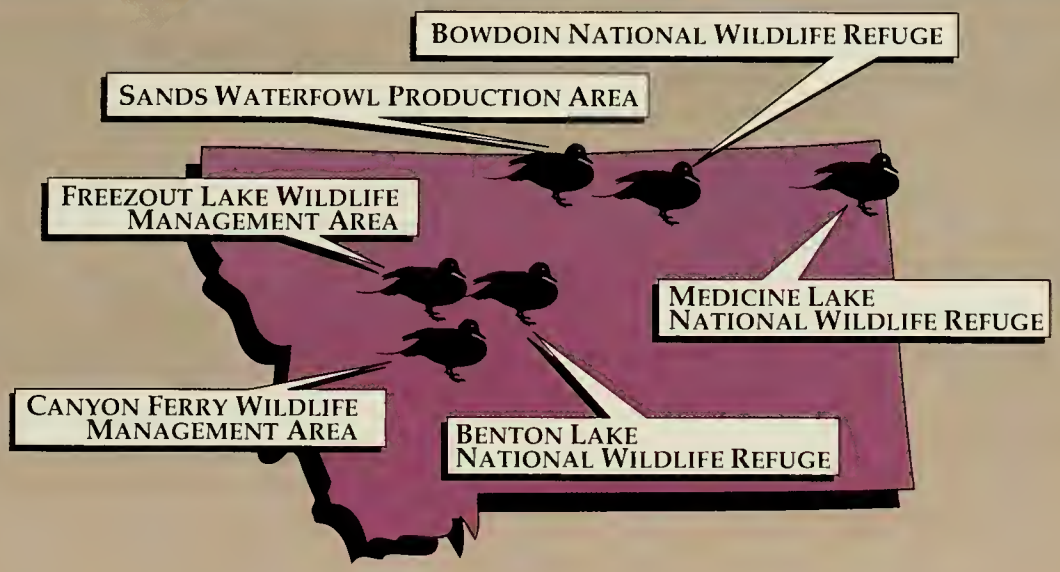
Another DU program, called Prairie CARE, focuses on improv-

ing duck production by providing nesting cover and restoring wetlands through agreements with landowners. In a few short years, more than 9,100 small wetlands encompassing nearly 43,000 acres have been restored through this program, and more than 110,000 acres of nesting cover have been put under intensive management for nesting ducks.

In Montana, says FW&P's Herbert, money derived from the sale of state waterfowl stamps and artwork is being channeled into wetland enhancement. "Arid as it is, Montana contributes a lot to continental waterfowl production. In fact, the Colorado Duck Stamp Program and Colorado Ducks Unlimited recently contributed $50,000 for habitat work in north central Montana. We'll match these funds with money from our own waterfowl stamp program, Montana Ducks Unlimited, and the U.S. Fish and Wildlife Service to accomplish far more than we could on our own."

In addition to habitat restoration, steps have also been taken to reduce the pintail harvest. The U.S. Fish and Wildlife Service currently allows only one pintail in the daily bag and two in possession. Because the harvest rate for pintails is lower than for most species of ducks, biologists feel the breeding population is being adequately protected. "What pintails mainly need," says Herbert, "are good water conditions and the availability of secure nesting habitat."

With a new spirit of cooperation and understanding among landowners, biologists, and politicians, and the continued caring of all who thrill to the sight and sound of sprigs pitching into a prairie marsh, perhaps the "greyhound of the air" can one day resume its place as North America's most abundant duck. ■


BOWDOIN NATIONAL WILDLIFE REFUGE
SANDS WATERFOWL PRODUCTION AREA
FREEZOUT LAKE WILDLIFE MANAGEMENT AREA
MEDICINE LAKE NATIONAL WILDLIFE REFUGE
CANYON FERRY WILDLIFE MANAGEMENT AREA
BENTON LAKE NATIONAL WILDLIFE REFUGE

Places to Watch Pintails

The best times to look for pintails at the areas listed below are mid-March through early April in spring, and September and October in fall. Pintails are among the first waterfowl to reach Montana in spring, arriving as soon as ice begins to melt on lakes and ponds. Watch for the spectacular courtship flight, where a half-dozen or more drakes dip and weave in precise formation, vying for the attention of a single hen. Peak numbers during spring and fall migration may reach 25,000 birds at Freezout and Benton lakes.

Canyon Ferry Wildlife Management Area—Begins one mile north of Townsend and continues for two miles along the east side of U.S. 287. It can be reached by gravel roads that turn off of U.S. 87. Or, from Townsend, follow U.S. 12 east for a short distance, then turn north onto Harrison Road. Call 406/226-3367 for additional information.

Freezout Lake Wildlife Management Area—Drive three miles north from Fairfield on Highway 89, or 10 miles south from Choteau on Highway 89. Call 406/467-2646 or 406/454-3441 for additional information.

Benton Lake National Wildlife Refuge—Just north of Great Falls, turn off U.S. 87 onto Bootlegger Trail (Secondary 225) and follow it approximately 12 miles to the refuge entrance on the left side of the road. Call 406/727-7400 for additional information.

Sands Waterfowl Production Area, Halfway Lake—Just off Highway 87 on the west side of Havre. Call 406/727-7400 for additional information.

Bowdoin National Wildlife Refuge—Follow U.S. 2 east of Malta for about one mile, then drive east on old U.S. 2 for about six miles. Call 406/654-2863 for additional information.

Medicine Lake National Wildlife Refuge—Drive east from Wolf Point on U.S. 2 for 47 miles to Montana 16. Turn north on Montana 16, which runs through the west end of the refuge. Call 406/789-2305 for additional information.

KOURTNIE MAGNESS

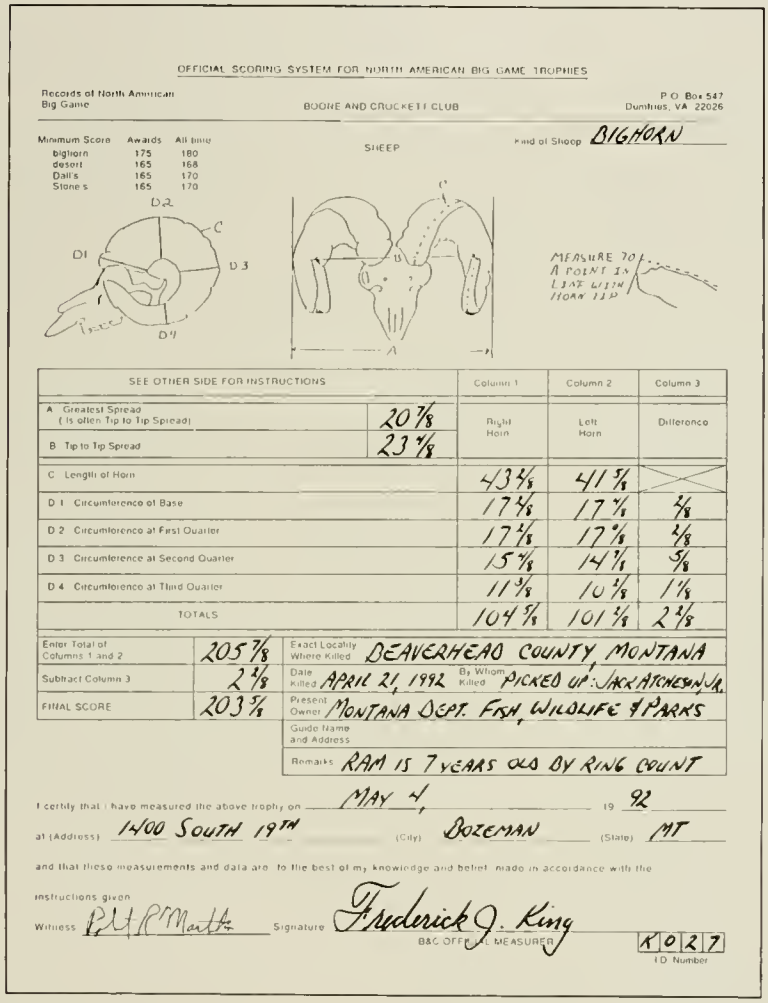
HIGHLANDS RAM 'TOPS 'EM ALL

by MICHAEL R. FRISINA and JACK ATCHESON, JR.

While traversing the steep slope, climbing over rocks and sagebrush, we could see the dead bighorn ram was large. But none of us was prepared for just how large—it turned out to be the largest bighorn sheep ram ever recorded for the United States, and among the top four or five in the world.

Jack Atcheson, Jr., a Butte guide, first spotted the dead ram in April 1992 while he was out with his family, looking for sheep in the Maiden Rock area south of Butte. Through his spotting scope, he was watching three very large rams feeding on a hillside. Then the horns and skeleton of a tremendous ram grabbed his attention. Atcheson returned to Butte, contacted Department of Fish, Wildlife & Parks (FW&P) biologist Mike Frisina, and they organized a retrieval crew including Bob Maier, a Butte taxidermist, and Tim Magness, a local sheep hunting guide.

The Highland Mountains/Maiden Rock area in Hunting District 340, in southwestern Montana near Melrose, has a reputation for producing large rams. This is by far the largest ram ever found here—or, for that matter, in the United States. The circumference of the ram's horns is the heaviest on record—over 17-4/8 inches on each base. (See Figure 1 for a more detailed description of the ram's measurements.) The longest horn measured 43-2/8 inches. The horns were scored by FW&P biologist and official Boone and Crockett scorer Fred King. The official gross Boone and Crockett score was 205-7/8 points, or 203-5/8 points after deductions (one horn is always larger than the other; points are deducted based on the difference between the larger and smaller horns). Amazingly, the ram was only 7-1/2 years old at the time of death.



OFFICIAL SCORING SYSTEM FOR NORTH AMERICAN BIG GAME TROPHIES

Records of North American Big Game — BOONE AND CROCKETT CLUB — P.O. Box 547, Dumfries, VA 22026

Minimum Score — Awards — All time
bighorn 175 180
desert 165 168
Dall's 165 170
Stone's 165 170

SHEEP — Kind of Sheep: BIGHORN

MEASURE TO A POINT IN LINE WITH HORN TIP

SEE OTHER SIDE FOR INSTRUCTIONS		Column 1	Column 2	Column 3
A Greatest Spread (Is often Tip to Tip Spread)	20 7/8	Right Horn	Left Horn	Difference
B Tip to Tip Spread	23 4/8			
C Length of Horn		43 2/8	41 5/8	
D 1 Circumference at Base		17 4/8	17 2/8	2/8
D 2 Circumference at First Quarter		17 3/8	17 2/8	1/8
D 3 Circumference at Second Quarter		15 4/8	14 1/8	3/8
D 4 Circumference at Third Quarter		11 3/8	10 1/8	1 2/8
TOTALS		104 3/8	101 1/8	2 3/8

Enter Total of Columns 1 and 2	205 7/8
Subtract Column 3	2 3/8
FINAL SCORE	203 5/8

Exact Locality Where Killed: BEAVERHEAD COUNTY, MONTANA
Date Killed: APRIL 21, 1992 — By Whom Killed: PICKED UP: JACK ATCHESON JR.
Present Owner: MONTANA DEPT. FISH, WILDLIFE & PARKS
Guide Name and Address:
Remarks: RAM IS 7 YEARS OLD BY RING COUNT

I certify that I have measured the above trophy on MAY 4, 19 92
at (Address) 1400 SOUTH 19TH (City) BOZEMAN (State) MT
and that these measurements and data are to the best of my knowledge and belief made in accordance with the instructions given.
Witness: [illegible] Signature: Frederick J. King
B&C OFFICIAL MEASURER
K027
I.D. Number

Figure 1

Nobody will ever know how this big ram died. After the initial surprise of discovery, we began to speculate on his death. We found the bleached skull and entire skeleton at the base of a small cliff. Perhaps the ram had been fighting with another large ram on a small, flat bench above the cliff, when he received a tremendous blow that sent him hurtling onto sharp, rocky projections that broke his ribs and killed him. That is speculation—only the mountain knows the whole story.

The Highlands herd grew from two transplants made during 1967 and '69 with surplus animals from the Sun River. The current population of 300 to 400 bighorns has produced numerous trophy rams of sufficient size to qualify for entry in the Boone and Crockett record book. During the 1990 hunting season, FW&P issued 20 either-sex licenses for the Highlands. Fourteen of 19 rams harvested exceeded 180 Boone and Crockett points, making them potential record-book trophies.

Other than restricted harvest, no special management is imposed on the area. A hunter can shoot any size ram. Rather than limiting the hunter to a minimum horn curl size (3/4 curl, 7/8 curl, etc.), management has tried to keep the herd in balance with available habitat. This approach has reduced competition for food, enabling sound horn growth and lamb production. Keeping wildlife populations in balance with their available habitat helps assure future generations spectacular hunting and wildlife-viewing opportunities.

When the mount is finished, the record ram will be prominently and permanently displayed at the Department of Fish, Wildlife & Parks headquarters at 1400 South 19th in Bozeman. ■

Facing page: *Butte guide Jack Atcheson, Jr., (left) and FW&P biologist Mike Frisina display the horns and skull of the largest bighorn sheep ram ever recorded for the United States. Found by Atcheson near Melrose in southwestern Montana, the ram has an official Boone and Crockett score of 203-5/8 points.*